

The National Locksmith

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**CODES:
NEW GM Series**
pages 84-93

February 1994
Volume 65, No.2

THIS ISSUE

AUTOMOTIVE LOCKS

- TNL'S Excellent Adventure
page 28
- A New PAL!
page 30
- Life in the Fast Lane
page 32

MINI-SECTION

- American with
Disabilities Act (ADA)
starts page 34

BONUS SHOW PAGES

- ISC West Las Vegas
special pull out section

NEW...
EVERY MONTH...

Test Drive
Product Review

See back page!

CONTENTS

February 1994 • The National Locksmith • Vol. 65, No. 2

8 Nothin' To Turn
Your Nose Up At, II

16 Using The
Rotating Constant

20 Auto Opening:
The Principles

22 More Than
A Meter Reader

28 TNL's Excellent
Adventure

30 The Auto
Locksmith's PAL

32 Life In The
Fast Lane

34 Don't Let ADA Be
Your Handicap

37 ADA Product
Gallery

39 A Major
Attack

72 Southern Steel
10195 Electrolock

77 Opening The
Ford '94 Mustang

78 Alarm Lock's
Trilogy

Codes

84 94 GM Codes
F000-F999 & L000-L999

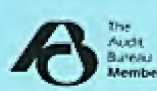
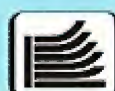
Departments

5 Commentary
6 Letters
12 Newsmakers
26 Beginner's Corner
47 Wholesale Guide
50 Business Briefs
54 The Lighter Side
64 Technitips
71 Bits & Pieces
73 Thru The Keyhole
98 Shop Talk
100 Index of Advertisers
100 Industry Meetings
102 Test Drive

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COMMENTARY

Order your copies of CRIME PREVENTION now!

This month I have sad news to report. Our industry has lost Lucille Mondy, proprietress of McManus Locksmith Supply, Inc., Charlotte, NC. Mrs. Mondy was truly a lady. She was one of the first people I called on after joining the locksmith industry and she was gracious enough to share her knowledge with me. I am sure that her family, friends and customers will remember her always.



Marc Goldberg
Editor/Publisher

This month brings a change to the Technitips column. For a number of years now, Bob Sieveking has sweated blood to bring you the best tips possible. Bob worked long and hard to insure that the tips were valid, and that they were well illustrated. Now, Bob has passed the Technitips torch on to Jake Jakubowski. Bob will continue to write technical articles for *The National Locksmith*, and remains closely associated with the magazine. Many thanks to Bob (and his wife Jane) who did such good work for so many years.

I am sure you can expect good things from Jake Jakubowski and the Technitips column in the future. Jake brings a certain flair to the job, and I know you'll enjoy his wit and wisdom. Jake has asked me to nag you guys to write down your tips and to send them to him, care of this magazine. Do you have a better way to do a job? Simply write it down and send it in to win a great prize. In last month's issue, we even included a handy postcard you can use to submit your Technitip. Rip it out...write it down...and send it in today!

We've been talking a lot about our new CRIME PREVENTION publication in this column. In fact, I have been interviewed by several magazines and newspapers about this project. The Chicago Tribune even ran a photo of yours truly in the business section. Many people who saw the article telephoned me to request a subscription to the publication.

Remember, CRIME PREVENTION is available to you to use as your own instant marketing program. You pay less than 20 cents per copy, and can imprint your name and phone number on each issue. When you hand these magazines out to your customers, they will learn much more about how to prevent crime, and about how your business can help them secure themselves, their loved ones, and their property.

CRIME PREVENTION's first issue hits next month. That's why it is important that you order your copies immediately. Supplies are limited, and you don't want to miss this opportunity to promote your company to hundreds of people in your community for less than a \$20 bill.

Simply clip the coupon on page 46 and send your order in today. If you don't do it soon, your customers will be "reading all about it" in a copy of CRIME PREVENTION given to them by your competition.

We have heard many positive responses from our readers about the NEW National Locksmith. You've noticed that we now offer you more pages, more articles, more codes, and more information than ever before. Our pledge is to offer you the ultimate value for your subscription dollar.

If you like what we've done with the magazine, drop me a line. Or if you have any ideas for articles you'd like to see in the future let me know about it. My address is 1533 Burgundy Parkway, Streamwood, IL 60107. Don't be a stranger!

Marc Goldberg

LETTERS

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Locksmith Applauds New Publication

Dear Marc:

Thanks for the *Crime Prevention* magazine. I intend to put my name and phone number on my 300 copies, and send them out to my clients and prospects. What a quick and economical way to spread the word about locksmithing!

Fred Peters
California

Another Cheer For Crime Prevention

Dear Marc:

You guys just never stop. Hallelujah! "Crime Prevention" what an innovative, advertising and public relations idea. Your magazine has always been there to help; i.e. Security Certificate program, up-to-date information, business advice, the list goes on.

Even when it isn't in your magazine, it's just a phone call away. I know because you've helped me. I'd like to include a special thanks to Jake Jakubowski; his articles have often helped me to take a good look at what I've been doing and help to steer me in the right direction.

I'm including my order and can't wait until March. Continued success and Happy Holidays to all.

Carl J. Bourdette
New York

Reader Says Thanks

Dear Marc:

About six weeks ago I wrote for help in locating a lever handle lockset with a 2" backset. Very promptly I received an unsigned note with a supplier's name, Laza Co., part numbers and prices for bright brass and antique brass locks in low profile and full projection configurations. In short, more information than I asked for, but all very helpful.

The rest of the story is that while I was familiarizing myself with the instructions that came with the lock, my customer called to ask if it had arrived—the existing one had come to pieces in his hand and he needed it replaced immediately. He was very happy that I could come over and install the new one within the hour.

Thank you for your assistance, whoever you are.

Jon M. McKenzie
Colorado

Editor's Note: Jon, your "Thanks" has been forwarded to our Managing Editor, Tom Seroogy, who handles many of the technical questions.

Dave McOmie's Safe Opening 5

Dear Marc:

I just received Dave McOmie's latest Guide to Safe Opening 5, which I received free with my National Safeman's Organization (NSO) membership. I am happy to see the common (and not so common) safes everyone always asks about in it.

Please send Guide to Safe Opening Volumes I, II, and III to me. Enclosed is my coupon from last year. I just noticed it was going to expire December 1, 1993. I would have been a sad boy if I missed the expiration date.

Keep up the great works and workings. I am a novice and your books encompass the whole subject of security containers from lever tumbler key locks to Group 1R combination locks.

Locked-in on a good thing,

Craig A. Toocheck
Pennsylvania

Star Key Cites Article

Dear Marc:

Thank you so much for the wonderful article about us in the December issue. All of us at Star Key send our heartiest appreciation.

Thank you so much.

Richard Cohen
President

Special Condolences

Dear Marc:

Occasionally someone passes away that has had an impact on our industry. I feel that this is the case here.

Richard (Buddy) Cunningham passed away on October 28, 1993 in Houston, Texas. Born on September 15, 1914 Buddy was the only son of Walter Cunningham, one of the first locksmiths in Houston. He carried on his father's trade as a locksmith in Houston for over 60 years. He leaves behind three sons, all active locksmiths, and a son-in-law, also an active locksmith. Buddy and his wife, Delma (also a locksmith), were both members of TLA until their retirement. Buddy and his family give better definition to the term "Family Business." His son, Tommy, and son-in-law, Johnny, are with Bellaire Safe and Lock. Cecil (Rick) is with Security Lock - all in the Houston area. Martin

Lee, the eldest son, has Cunningham Mobile Locksmith in Modesto, California.

Martin L. Cunningham
California

Reader Sends Appreciation

Dear Marc:

On behalf of myself, Rick and Deby, we wish to publicly thank everyone donating to THE RICHARD MIDDLETON MEMORIAL SCHOLARSHIP FUND. During the past Master Locksmith Association of N.J. shows, many donations were made anonymously to the silent auctions. We do not wish to offend anyone by not acknowledging their generosity. We wish to give special thanks to The Master Locksmith Association of New Jersey and all its membership. Everyone gave up many hours of their time and energies in getting the fund started and running for the past three years. It achieved our goal which is to keep Richard's memory alive through education of new locksmiths.

Again, thank you, which seems like such a small word for all that's been done.

Dale, Rick and Deby Middleton
Bell's Security
New Jersey

Some Final Tips From A Retiring Locksmith

Dear Marc:

You've published quite a few of my letters and Technitips and I appreciate that. They were sort of hiatus when I ran into blocks while writing other stuff.

I found that writing was a good supplement as income producer and time filler when things were slow in the shop.

Your magazine was a great help to me. I have been doing lock work of some kind since 1972 and still never learned even a portion of what there was to learn. Your magazine helped fill many holes in my mental data bank.

That's one thing I liked about the business. Every customer had a different problem and I never knew what I was going to get into, and have

to get myself out of. My regular customer, contractors, realtors, business people, motor clubs and property managers were loyal and good to me. I will miss the single distress calls because I do enjoy being a hero. Your locksmith readers will understand what I mean.

I do have a couple of final tips. I traveled a lot during the winter, mainly in the south. In my vehicle (civilian van) I kept a few basic car opening tools. In my wallet there was a special compartment for a double sided pick and short turning wrench. Over-hearing two "I'm going to be awhile, I locked my keys in my car" conversations, a request for a coat-hanger, and referrals from the previously mentioned got me jobs I didn't expect. I was on vacation so I told the people that "this one is on the house. My business is in Maine." All paid me anyway and some more than I would have asked.

So, wherever you are keep a few tools around or learn to be very innovative.

Jerry LaPierre
Maine



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by
Jake Jakubowski

NOTHIN' TO TURN YOUR NOSE UP AT, II

"I figure that this job would be worth more to the average locksmith than 12 to 15 car openings, including your service call."

Last month I covered a few of the basics for becoming an electronic locksmith. This month I cover two recent installations.

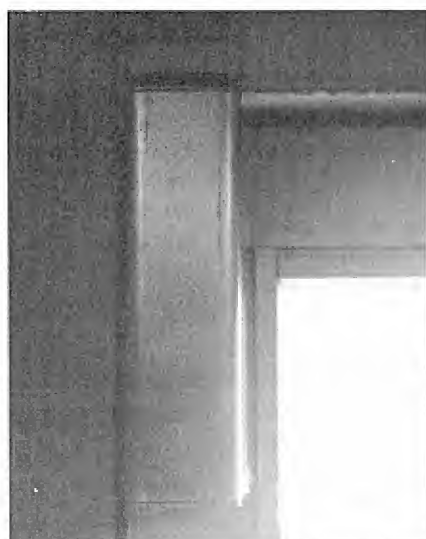
The first one was a request for: "a power lock that my wife can use to lock the door, if she sees anyone suspicious approaching the shop."

I went out, looked the situation over, made my recommendations, quoted a price. The only thing the customer wanted to know was, "How soon, can you put it in?" (The wife had been robbed the day before.)

The second job was for a pizza delivery store (a regular customer). They had been robbed several times, and wanted a lock on the carry-out side of the shop that they could keep locked if they wanted to and, yet, be able to open from behind the counter.

Job #1

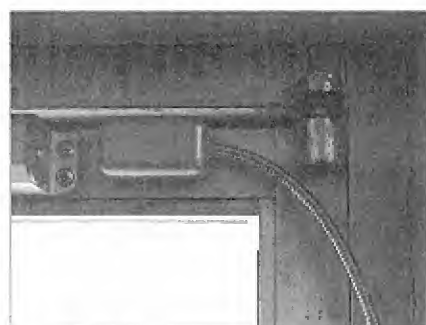
This was a Mom and Pop appliance store with a single, narrow stile glass door for an entrance. The door had a standard Adams Rite, MS 1850 series



1. Alarm Lock's model 103 electric deadbolt mounted vertically on a narrow stile aluminum frame



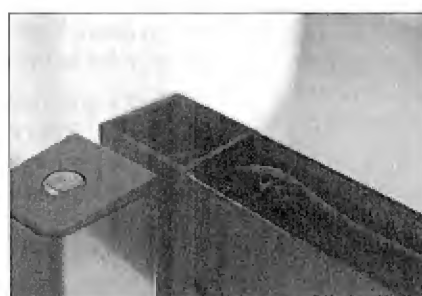
2. The model 103 strike mounted to the door header. Alignment of the strike and deadbolt is critical. A magnet that operates a reed switch is under plate and controls the timing and activation of the bolt.



3. This armored door loop prevents the wires from becoming pinched between the door and frame.



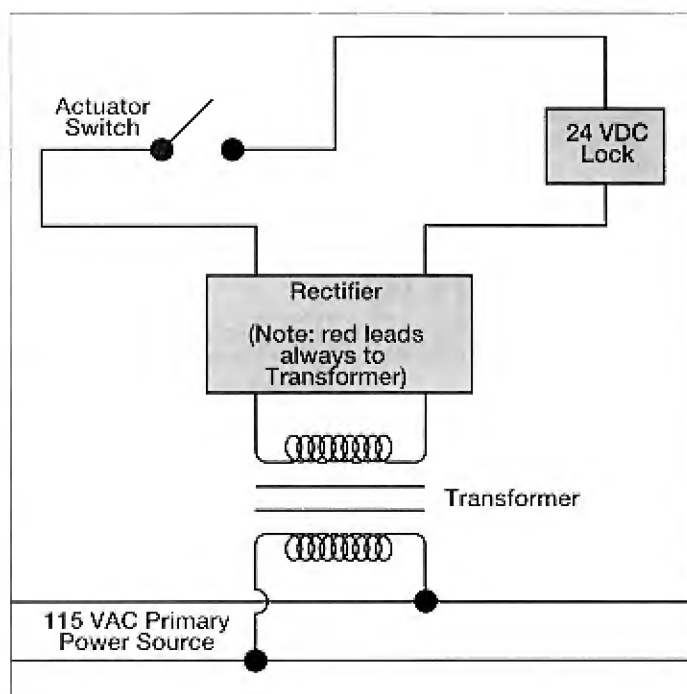
4. The wire was run from the armored door loop through the cavity in the door's top rail...



5. ... to the lock.

deadlock. The "office" of the store was a counter in the back, right hand corner, of the store. It was from here that the customer wanted his wife to be able to "instantly" lock the door should she feel threatened by anyone approaching from the outside.

The customer wanted to keep the Adams Rite deadlatch. That meant that whatever I installed on the door would have to meet Life Safety Codes, and still deliver the type of security the customer was looking for.



6. The wiring for this job is slightly different than the wiring illustrations shown last month.

I opted to install an Alarm Lock, Model 103 Electric Deadbolt, mounted vertically on the aluminum stile of the door. (See *photograph 1*.) This lock is a "fail-safe" unit which automatically unlocks when the power is shut off.

The reason for the selection of the Model 103, was to comply with Life Safety Codes, and to prevent the door from being accidentally locked (electrically) when the store was closed at night. If, during the day, the door is in the locked mode, it will still comply with Life Safety Codes, since someone is present to make a "key" (operate the switch) readily available" to anyone in the shop.

The "strike" mounted on the top rail of the frame contains a magnet which energizes a reed switch that activates the lock when the power to the lock is on. (See *photograph 2*.)

(NOTE: Whenever you install this type of deadbolt, alignment of the lock and strike are extremely critical. Always check the alignment of the door and frame, and be prepared to shim either the strike, or the lock as necessary.)

The power line to the unit comes up from the basement, along the hinge side of the jamb to Alarm Lock's Model #271 Armored Door Loop, (see *photograph 3*), which carries the power cord across to the door frame. The armored loop prevents the power cord from being entangled in the hinges, or pinched between the door and the frame. With the wiring run from the frame to the door stile, I drilled a hole through the top rail of the door, and ran the wire along the cavity (see *photograph 4*) in the top rail to the lock-side of the door, and connected the wiring to the lock itself. (See *photograph 5*.)

The power to energize, or de-energize, the lock is controlled by a remote switch located under the "office" counter. Since the idea was to "lock" the door randomly, and for indefinite periods of time, I used a standard "ON/OFF" toggle switch rather than a momentary contact switch. The purpose behind this lock was not to keep the door locked constantly, only intermittently.

Since the switch, lock, and transformer are in remote locations from each other, it is necessary to wire the unit a little differently than shown in the illustrations from last month's article. Illustration six shows the wiring configuration for this

installation. Please note that the wiring, with an added "branch" for the switch, still follows the A to B, etc., "loop."

The lock, armored loop, transformer, rectifier, wire, switch, switch box, miscellaneous screws, wire nuts, and incidentals cost me approximately \$160.00. I charged the customer twice my cost for the materials, three hours labor for the installation, at my normal hourly rate, plus my normal service call fee.

Using my cost figures, add 3-1/2 hours labor at your regular hourly rate, add \$160.00 "profit" on the cost of materials, add your service call fee, and you can see just how much money a job like this can bring in. Brothers and sisters, it really ain't nothin' to turn your nose up at!

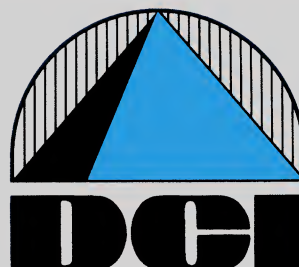
After deducting my material, I "netted" more money than I could have made on ten (yes, T-E-N) car openings. I don't know about you, but I've never gotten ten car opening calls in 3-1/2 hours! Personally, with jobs like this around, the police in the area I service, can open all the cars they want!

Job #2:

This job was for one of my regular accounts that had just been robbed for the third time. It is a pizza delivery store with a carry-out area that is entered through a separate door. The driver's entrance has a Securitron DK-20+ on it and entry can be gained only by entering the proper code on the touchpad. The door to the carry-out area is a standard store front door and, normally, remained unlocked during business hours. It was through this door that the robbers entered each time to hold up the store.

The layout of the store is such that a full width counter (without a gate) in the "pick-up" area, precludes the employees from locking the door at night and unlocking the door for customers.

What my customer requested was "something I can unlock from behind the counter, or that I can leave unlocked during the day if I want to." Again, Life Safety Codes play a big part in the decision as to what type of system I would install. Even though there was someone behind the counter at all times, they were often out of sight of the door, and might not



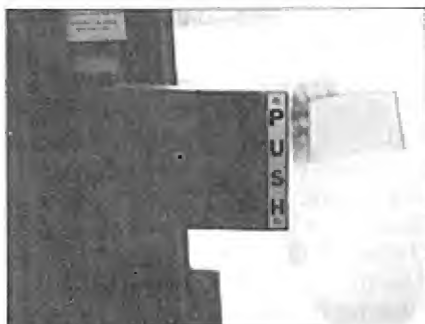
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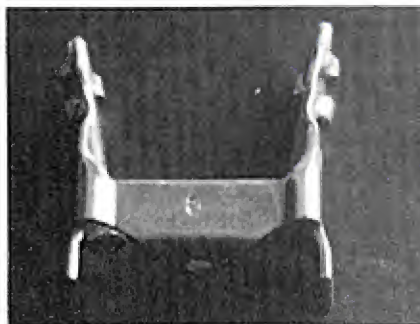
know that a customer wanted to leave.

In order to comply with Life Safety Code requirements for "one motion" egress, I installed an Adams Rite 4710 deadlatch, with a 4590 Push/Pull paddle handle. This configuration (see photograph 7) would allow any customers inside the pickup area to exit without the door being unlocked by an employee. This combination also allows the store personnel to leave the door in the "unlocked" position by dogging the latch.

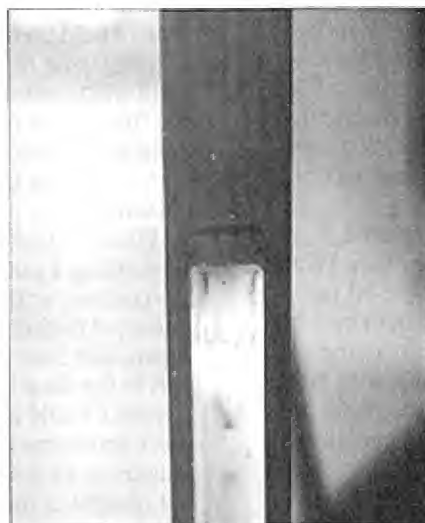
Both the 4710, and the 4590, can be ordered "handed." However, if you do not order them that



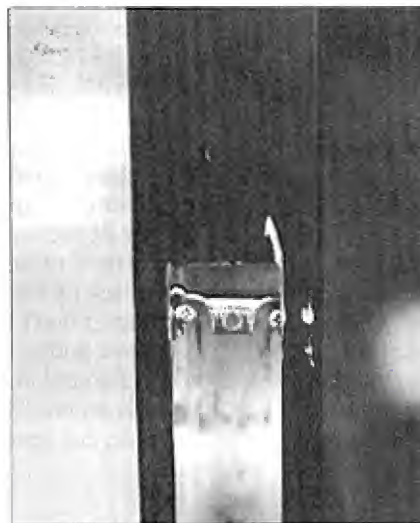
7. The Adams Rite 4590 paddle allows "one motion egress."



9. The Adams Rite 4104 mounting bridge.



8. This cutout had to be slightly enlarged.



10. The bridge in place ready to accept a lock.

way, or your supplier inadvertently sends you the wrong hand, they are easily field reversible. As with any lock, you want to make sure that you order the proper backset. A 31/32" backset does not work well in a door cut for a 1-1/8" backset.

Be aware that when you install an Adams Rite 4710, you may very well have to modify the opening. Photograph eight shows my mark for enlarging the opening on this door in the edge of the door to receive the new lock. This is not difficult, but does need to be done with caution. Once you enlarge the opening for the lock, you will most likely find that the



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mounting holes in the door, will not now match the holes in the 4710 mounting plate. They will be either higher, or lower. In this instance, you will want to use two #4104 Mounting Bridges. (See photographs 9 and 10.) Adams Rite's positioning tool (#407501) greatly simplifies the installation of those bridges.

Although the 4710/4590 combination can stand alone as a unit, it was necessary to install an Adams Rite 7810 Electric Strike in order to comply with my customer's request for something that could be locked when necessary, and still opened from behind the counter. This is where electronics comes into play. Believe me, the electronics part of this installation is by far the easiest part.

The most difficult, and critical, aspect of this installation is making the compound cut-out in the aluminum jamb to receive the 7810 strike. (See photograph 11.) You have to cut out the latch side of the jamb, and a portion of the face of the jamb to accommodate this strike. So, measure twice, and cut only after measuring twice more!

The easiest method (for me, at least) of making this cut is to first find the vertical and horizontal centerlines of the 4710 latch, and transfer those measurements to the jamb. Then, I positioned the face of the strike flat against the jamb, and while using the vertical and horizontal center lines that I marked as a guide, I drew the outline of the face plate with a magic marker.

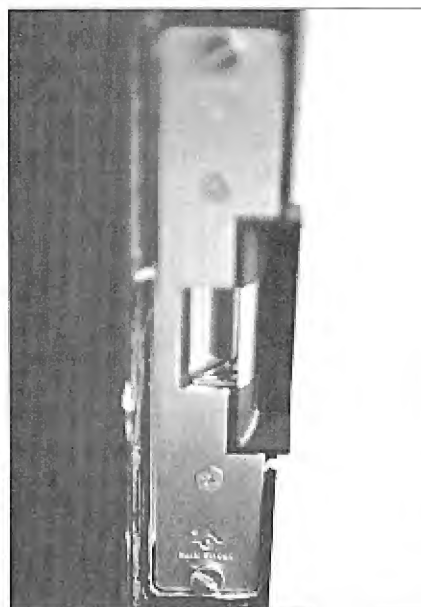
Since the corners of the 7810 strike are round, I first drill a 3/8" hole at each inside corner of my outline. Then using a medium toothed metal-cutting blade in my Saber saw, I cut out the outline that I drew. I followed the inside of the outline. It's better to cut a little too narrow, and file the rest to fit, than to wind up with too large an opening. Then, by measuring the strike, and drawing the measurements on the face of the jamb, I cut out for the plastic, offset, cover plate.

After trimming, and fitting, I used the tabs supplied by Adams Rite to mount the 7810 in position. This allowed me to check all the alignments, and make whatever adjustments are necessary before wiring the unit. (See photograph 12.) Photograph 13 shows the completed strike installation from the face side of the jamb.

At the top of the jamb post (as near to the ceiling as possible), I drilled a hole on the inside of the post, ran a



11. Cutting the frame to accept the Adams Rite 7810 electric strike.



12. The strike is mounted.

"snake" down the post, and pulled the wire that would connect the strike to the rest of the system, up through the hollow post. I then ran that wire over the ceiling tiles, and down the wall to where the momentary contact switch (see photograph 14) and transformer would be located.

The wiring would follow illustration six, except that there was no rectifier used in this installation. It is an AC strike, and the "buzz" that is emitted when the unit is activated, serves to alert the incoming customer that the door has been unlocked.

The complete installation took about 4-1/2 hours. I had to drive an hour each way to, and from, the job. I had previously driven to the job-site to determine what would be needed to do the job. Let's say, another two hours. Call it 8-1/2 man-hours in the job, from start to finish. Add to that approximately \$185.00 for the strike, latch, paddle handle, transformer,



13. The complete strike from face of door jamb.



14. This momentary switch was used to operate the strike.

wire, switch and miscellaneous bits and pieces, etc.

Once again, using your hourly rate, doubling the cost of the materials, and adding your standard service call fee, how much would you have netted on this job after deducting your material cost of \$185.00? I figure that this job would be worth more to the average locksmith than 12 to 15 car openings, or ten single rekeys, including your service call on EACH ONE! Get out your pencil, and see if I'm not right.

To really put the icing on the cake, so to speak, both of these jobs were done the same week. If I had done nothing but these two jobs, it would have given me a nice paycheck. True, these jobs don't come down the pike everyday, or every week, but when they do, you can pick up some nice coin by doing them.

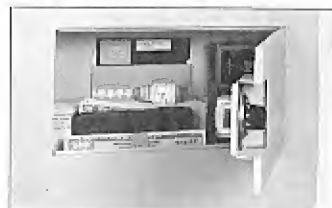
I hope that what I have shown you here has sparked your curiosity enough to get you to thinking about the electronic side of locksmithing. Not every job that you take on will net you electrifying profits. But overall, I know that you can make more money per hour than you can with "conventional" locksmithing. Like I said earlier, "...it ain't nothin' to turn your noses up at!"

NEWSMAKERS

New Products and Industry News

Buddy's Wall Safe

Buddy Security System is introducing their new compact "WALLSAFE" that provides overnight or permanent security for cash and bonds, important document, keys, firearms, etc.



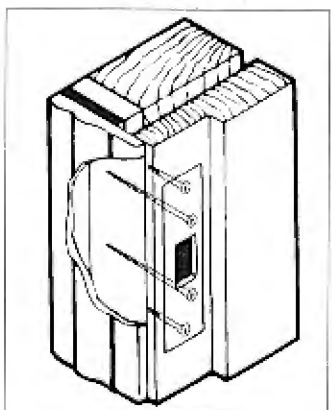
The fire-resistant "WALLSAFE" mounts snugly between wall studs in the home, office, apartment, garage, just about anywhere. Installs in minutes.

Double-reinforced heavy gauge steel door, with full piano hinge and recessed dead bolt combination lock. Over 500 cubic inches of storage space, with 12-1/4" X 6" opening for easy access. Attractive putty "textured" steel construction.

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Security Strikes From Don-Jo Mfg.

Help prevent kick-in attacks with security strikes



from Don-Jo Mfg. The security strike concept is simple. By adding two offset holes and 3" screws to the strike, it enables the screw to penetrate the 2" X 4" behind the door frame, increasing the strength over 100 times. Don-Jo Manufactures a complete line of security strikes. Sizes range from the standard 4-7/8" all the way up to 18".

For **FREE** Information
Circle 343 on Rapid Reply

HPC's New Blitz™ Code Machine

HPC's new Blitz™ code machine has arrived. The upgraded version of the world famous 1200CM. The Blitz™ works exactly the same as the 1200CM, but has several added features.

Both the Depth and Spacing wheels have fewer



threads per inch, which means that substantially less revolutions are needed to achieve the full range of travel.

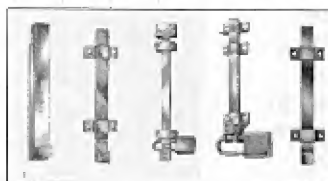
Other added features include a new flip-gauge that is more visible and easier to grab. Plus, the new Blitz™ code machine is equipped with HPC's Softie™ deburring brush with a safety shield. HPC's Blitz™ is destined to become a new "Standard of the industry."

For **FREE** Information
Circle 344 on Rapid Reply

H.B. Ives Surface Bolts

H.B. Ives offers a complete selection of heavy duty surface bolts in a variety of styles, sizes and features for commercial and institutional applications.

Ives surface bolts are made of all steel construction to insure maximum strength.



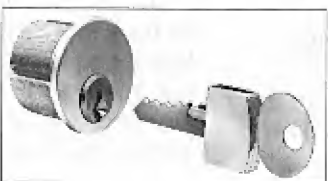
Many of Ives heavy duty surface bolts are UL Listed as top and bottom surface bolts for use on classified hollow metal, metal clad, steel covered composite and sheet metal fire doors.

This line of surface bolts offers additional security features such as concealed screw mountings, one-way screws, through-bolts, and the capability of being padlocked. A variety of strikes are available to accommodate most any application.

For **FREE** Information
Circle 345 on Rapid Reply

Lori's Removable Cylinder

Lori Lock introduces its Captive Thumbturn-Key Cylinder. The cylinder fits into any standard mortise cylinder application. The removable thumbturn converts a single cylinder locking mechanism



into a double. Ideal for store front applications concerned with both daytime fire safety and night time perimeter security.

The cylinder also adds security to residential applications using the Lori deadlock. Allowing the thumbturn to be removed when leaving the home, the single cylinder deadlock is instantly converted to a more secure double cylinder deadlock. Reinserting the thumbturn upon returning, the deadlock is once again equipped for emergency exiting.

For **FREE** Information
Circle 346 on Rapid Reply

Macro Media's Plug-in Fire Alarm

The requirements of the Americans with Disabilities Act for Fire Alarm Systems in Public Accommodations can

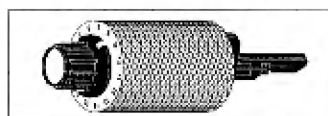


be met with an Auxiliary Fire Alarm System that uses the existing electrical power wiring to remotely activate the required Audible and Visual alarms. Smoke Detector Assemblies with High Intensity Strobe Light and Alarm Horn, are plugged into the electrical power outlets in each room. Along with their operation as smoke detectors, these Assemblies are activated remotely when the Main Fire Alarm System is triggered.

For **FREE** Information
Circle 347 on Rapid Reply

Briggs & Stratton's Sidewinder

Now interrogating a vehicle is easier than ever with The Sidewinder V.A.T.S. mini-decoder. This newest innovation in vehicle interrogation is available from Briggs & Stratton Technologies. A versatile

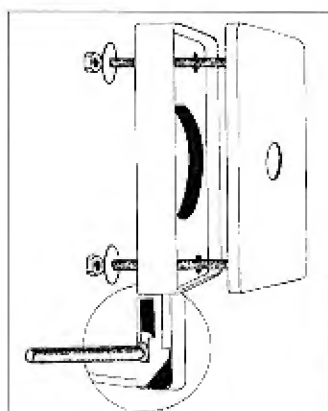


tool, the Sidewinder works with single-sided or (with adapter) double-sided V.A.T.S. The Sidewinder is compact, wireless unit, so it's easy to use; convenient to store; and ready to go anywhere you need to take it. Because it's made from tough alloy steel, the durable sidewinder can withstand daily use in any climate or environment.

For **FREE** Information
Circle 356 on Rapid Reply

The Maxim M 80

The Maxim M 80 Lock Protector/Cylinder Guard plate has a number of unique features not found in other guard plates with concealed bolts.



Its concealed yet removable bolts allow for replacement when door thickness is such that shorter or longer bolts are required.

The minor adjustability allows for easier alignment with keyway.

With the Maxim M 80 a stripped or damaged bolt no longer means a useless

product. With the Maxim you merely replace a stripped or damaged bolt with a standard 1/4" x 20" bolt.

For **FREE** Information
Circle 357 on Rapid Reply

Flexafunction™ By National Cabinet

National Cabinet Lock offers the new flexafunction™ line of locks that can be set up with either a 90 degree or 180 degree cam turn. This enables one lock to be applied in a wider range of door or drawer application. As a result, inventory requirements can be reduced.



Flexafunction disc tumbler cylinder cam locks can be used on drawers or both left- and right-hand doors. They can be used with lipped/overlay construction (straight cam) or flush construction (formed cam). Keys are removable in both locked and unlocked position.

For **FREE** Information
Circle 348 on Rapid Reply

Solex High Security Auto Locks

Orion Pacific trading company is proud to introduce a new line of high security automotive door and trunk locks for the import market.



Solex brand, high security automotive car and truck locks feature a unique tubular key design that makes the lock virtually pickproof and a strong deterrent to vandals and thieves.

Continued on next page



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SOLEX

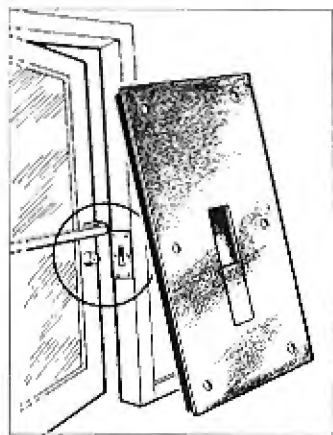
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Solex locks are designed to be correct replacements for the original equipment locks and feature high quality construction. Each set comes complete with three locks (two doors and trunk), or two locks (two locks for trucks), three tubular keys, handsome key chain, and complete installation instructions. Solex locks are recommended for installation by qualified locksmiths.

**For FREE Information
Circle 349 on Rapid Reply**

Major Mfg.'s Strike Gard

Strike Gard by Major Mfg. was designed to repair an aluminum door jamb that has been damaged, or to reinforce a jamb as extra protection against forced entry. The Strike Gard has been packed with one of Major's hardened cylinder guards at no extra charge.



The thin flat design will allow installation without the door rubbing the strike. Strike Gard will work on center hung aluminum doors with a 4" or 4-1/2" wide jamb.

**For FREE Information
Circle 350 on Rapid Reply**

Perma-Vault's Dual System

Perma-Vault's patented Model Pro-1200-M Dual Compartment Cash Protection System from Bonafide Factory Products consists of an Pro-1201-M outer unit and one Pro-1202-



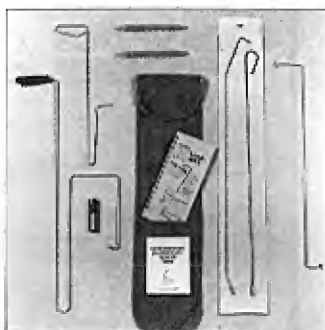
M inner unit. The inner units can be exchanged for convenient transfer to a counting room or to a cash pick-up service.

Perma-Vault's restricted keyways protect against unauthorized key duplication. The safe is virtually pickproof; keys are removable only in a locked position and custom key control systems can be designed to your specifications: masterkeyed, keyed alike or keyed different.

**For FREE Information
Circle 351 on Rapid Reply**

Slidelock's New '94 Master Z-Tool

The new '94 Master Z-tool System® is the complete automotive lockout system detailing the history of lock systems from the 1950's, right up to the newest '94 show room models.



The upgraded system's patented versatility requires only four working tools (Z-tool®, Auto Buster II Tool™, Japanese Tool™ and the recently added Frameless Window Tool™ with its own pouch that fits into the primary Master case). All working tools are guided by the updated and revised '94 6th Edition System Manual still illustrated in an exclusive four step, two color format teaching over 700 door cavity

opening methods and 100+ alternative methods.

**For FREE Information
Circle 352 on Rapid Reply**

Titan Introduces New Borescope

An inexpensive, miniature borescope series, with an unusually large field of view, is announced by Titan Tool Supply Co.,

With an unusually large



field of view of 95 degrees, which creates a "fish eye lens effect", the new series of borescopes is available in two models: a straight-forward viewing Model 55-0-6, which allows the viewer to see forward with 47.5 degrees sideways peripheral vision; and an angular-viewing Model 55-60-6, which has a normal angle of 60 degrees, giving the user a 12.5 degrees to 107.5 degrees field of view. Together, the two models offer a total of 215 degrees field of view.

**For FREE Information
Circle 353 on Rapid Reply**

Von Duprin's Narrow Stile Keypad

A new narrow-stile, surface-mounted 12-button keypad from Von Duprin incorporates advanced features that can improve accessibility to help meet ADA requirements. The Model 7321 keypad, which can be installed on door frames as narrow as 1-3/4", allows a special code to be entered to activate a door operator.

For secured areas, access can be restricted while providing accommodations for authorized individuals who

may have disabilities. While a special code may be given to these people, access at other times would be by standard PIN numbers or codes, which would simply unlock the door without activating the operator.

The compact Model 7321



keypad is designed for external applications and extends only 3/4" from the mounting surface. The unit's small size makes it possible to mount a keypad virtually anywhere access control is needed.

**For FREE Information
Circle 354 on Rapid Reply**

Resharpen Drills By Darex

Darex Corporation has a new free fact-filled packet that shows how to make money by re-sharpening drills. The Darex Corporation is a leading manufacturer or cutting tool sharpeners. Darex sharpeners offer locksmiths a lucrative addition to their business.

You'll gain valuable information on how to sharpen drills. This helpful literature recommends how much to charge per sharpened drill. The most successful methods of attracting and finding drill sharpening customers are also given.

**For FREE Information
Circle 202 on Rapid Reply**

Test Article #40

GENERAL SECURITY

To be tested in
March '94 issue
Details in front of issue

USING THE ROTATING CONSTANT

by Giles Kalvelage

The intent of this article is to apply the techniques of last month's article on Rotating Constant Master keying.

We will work with a two step masterkey system. This month we will use a Maximum Adjacent Cut Specification (M.A.C.S.) of 7, typical of Schlage, Arrow and a number of other manufacturers. For illustration purposes, we will use the same Top Master Key (TMK) for all of our examples. While obviously not desirable in field practice, the use of the same TMK biting between our examples will hopefully make our illustrations more comprehensible.

Our first illustration will be the keying expansion of a strip mall. (See illustration 1.) The scenario is a seven store strip mall which was erected about two years ago. Each store has a keyed alike front and rear door. Two stores have been rekeyed since opening. The system is strictly a two level masterkey system, meaning the only operating keys to be issued will be the TMK and the change keys. Now, the landlords are building five additional storefronts and wish to enlarge the existing masterkey system.

To start, the existing masterkey plan must be determined. It is nice when the individual doing the expansion designed the original system and has kept the records up to date. This being the case, our work is almost complete. The records and biting list will tell us:

- 47312 TMK
- 47330 Store 1, removed
- 47350 Store 2, in use
- 47370 Store 3, removed
- 47390 MACS violation
- 47334 Store 4, in use
- 47354 Store 5, in use
- 47374 Store 6, in use
- 47394 Store 7, in use
- 47336 Store 1, in use
- 47356 Store 3, in use

- 47376 available
- 47396 available
- 47338 available
- 47358 available
- 47378 available
- 47398 available

If the biting list is available, the masterkey technician sees that, at present, there are adequate available change key codes for use in the system. The technician may use the existing list, or expand upon it at his or her option.

Should the biting list not be available, the locksmith needs to decode the existing system and expand it. Decoding means determining the manufacturer of the lock system (which may also be obtained from the lock itself), obtaining the TMK and as many operating keys as possible, measuring the position and root depth of each key, and translating that number to the coded depth of the manufacturer to give us the biting of each key.

Example: SC1 keyblank, root depth

in the first position is .275", root depth in the second position is .230", root depth in the third position is .290", root depth in the fourth position is .320", and root depth in the fifth position is .305". By our information it may be reasonably assumed that the system is a Schlage, C keyway, five pin system. If this key was identified by the landlord as the only masterkey in the system, it would be confirmed that the TMK was 47312. This is because the root depth for a 4 cut on Schlage is .275", 7 cut is .230", 3 cut is .290", 1 cut is .320", and 2 cut is .305". Hopefully, the technician will be able to obtain the TMK and all change keys from the landlord or complex manager. Realistically, only the TMK and a few of the change keys may be available from the landlord. The fact that change keys 47330 and 47370 have been used and removed in the past may never be known to the lock technician expanding the system.

If the landlord or complex manager does not have change keys available, it would be wise to go to all of the

Store 1	Store 2	Store 3	Store 4	Store 5	Store 6	Store 7	
47336	47350	47356	47334	47354	47374	47394	(New) Store 8 47110
							(New) Store 9 47510
							(New) Store 10 47710
							(New) Store 11 47114
							(New) Store 12 47514

Illustration 1

existing tenants and decode each of their keys. Before doing this, it is best to secure a letter of permission from the landlord granting authority to decode keys. An additional courtesy would be a personal telephone call and a letter from both the landlord and the lock technician to the tenant announcing in advance the reason for the lock technician to view their existing change keys. These acts of courtesy show your concern in maintaining their security. In so doing, the tenant will be more secure in letting out keys to an otherwise stranger.

After receiving the tenants keys, decode and record them. Look for similarities and dissimilarities.

47312 TMK
47336 Store 1
47350 Store 2
47356 Store 3
47334 Store 4
47354 Store 5
47374 Store 6
47394 Store 7

One thing to note is that all combinations remained constant with the masterkey biting in the first three positions. That means that positions four and five were progressed. 16 change keys were at one time available. Although we might not be able to readily tell the sequence the positions were progressed, it would be a good guess that the fourth position progressed every combination and the fifth position progressed every four combinations. The combinations of Stores 4, 5, 6, 7 are constant in positions 1,2,3 and 5, and progress in perfect order in position four. Stores 1, 2 and 3 do not follow the same pattern as Stores 4, 5, 6 and 7. If the original biting list is not available, it may be dangerous to assume that the original lock technician who keyed those cylinders chose those combinations at random. In fact, as stated earlier, two stores have had their combinations changed since their opening. There is no way to determine two years later which combinations have been changed, how many combinations have been used and how many still exist unless you are the sole technician who maintained the system - but then an up to date biting list would be available.

Although there is no need to rekey change keys presently in use, it is not desirable to guess which of the nine remaining combinations not currently in use may or may not have been used and removed at an earlier time. In this

circumstance, it is recommended that the not in use combinations in the column be retired. Expand the system with the knowledge that you have. Three positions remain constant. Positions 4 and 5 were progressed. To expand the system, the same number of positions must be progressed as were originally progressed. In this case, two positions were progressed.

There is no law which states which positions must be progressed, however, there are some considerations to be kept in mind. Will cross-keying be designed into the

system? Cross-keying exists when more than one change key will operate a cylinder in addition to master keys. Another consideration is that masterkeying provides multiple shear lines within the same chamber. As a key enters and withdraws from a cylinder, the pins closest to the face of the cylinder ride the slopes of the key more than those pins farthest from the face of the lock. In fact, it is pointed out that on a five pin lock, the pins in the first chamber raise and lower five times more in the lock than the pins in the fifth chamber, thus receiving five times

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more wear. Because of this, many locksmiths prefer to progress the chambers farthest from the face of the lock first.

In our illustration, we will expand our system by progressing the third and fifth position. Our expansion combinations will be:

47110 Store 8
47510 Store 9
47710 Store 10
47910 MACS violation
47114 Store 11
47514 Store 12
47714 Available
47914 MACS Violation
47116 Available
47516 Available
47716 Available
47916 MACS Violation
47118 Available
47518 Available
47718 Available
47918 MACS Violation

No change key will operate any other change key in the system, however, the fourth biting in each block does violate a MACS of 7. Because we only need five additional change keys, this does not critically effect our system. The original master key will also work with these combinations. Although the previous change keys have the master key cut of 3 in the third position, none of them have a 1 cut in the fourth position. A 1 cut in the fourth position will be required for our new combinations to operate the cylinder. It is safe to assign each of the five new stores a combination from the new list.

Our next project involves a small apartment building. (See illustrations 2 and 3.) In our building, there are six apartment units, two units on the first floor, four units on the second floor. Also on the first floor is the front and rear entrance, a laundry room, a utility meter room and inside the utility meter room, a boiler room.

It is often desirable when designing a masterkey plan for multifamily dwellings to designate a single change key for the entrance doors and have anyone who does not carry the TMK to carry a separate key to gain entrance in the building. However, this landlord has his own requirements as follows:

1. Each tenant will have their own change key. Thus each apartment will be keyed differently. Each tenant will be allowed access into the building, their apartment and the laundry room.

2. Management maintenance men will be allowed access into the

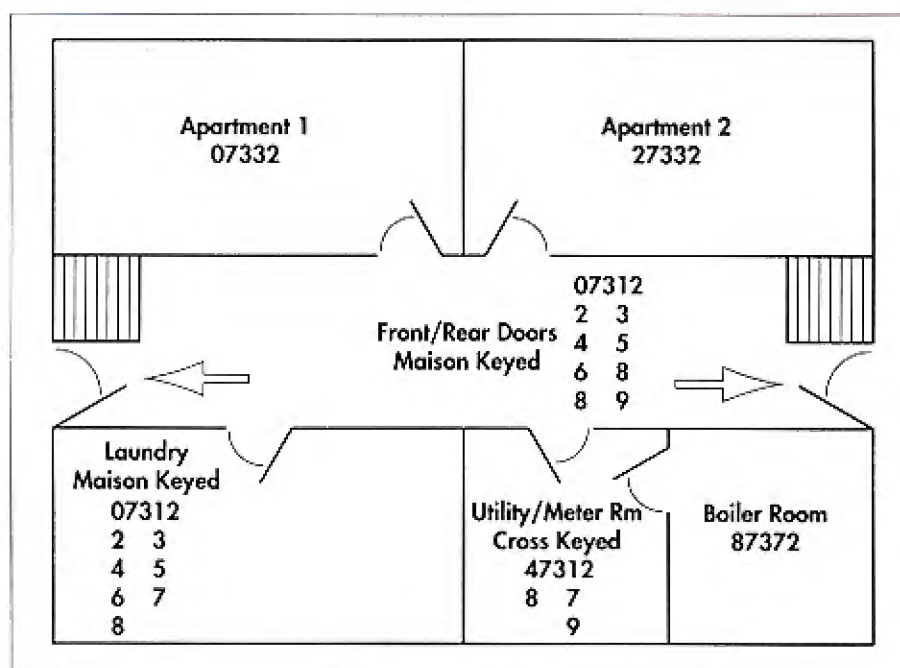


Illustration 2

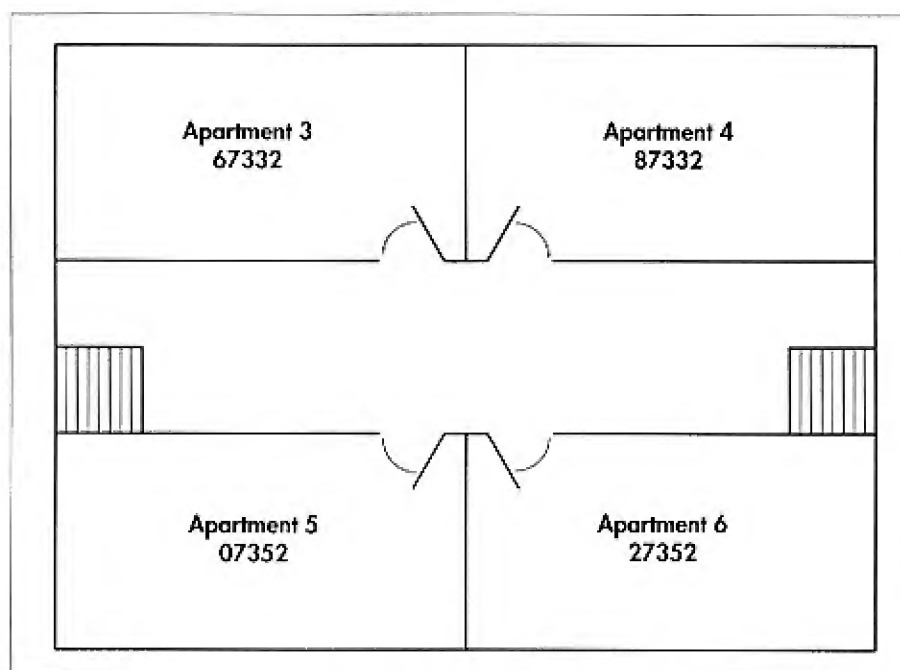


Illustration 3

building, the boiler room, utility room and the laundry room.

3 Cable TV personnel, village water meter readers, gas and electrical company meter readers will be able to pick up a single key at the landlord's off-site office which will allow access into the building and utility meter room only.

A five pin master key system will be developed, progressing two positions. Chambers 1 and 4 are progressed. As cross-keying is anticipated, it is chosen that the fifth position remain constant. This requires a key with a 2 cut at the tip to be fully inserted into the lock in order to operate the cylinder. The

following list will be used:

47312 TMK
07332 Apt 1
27332 Apt 2
67332 Apt 3
87332 Apt 4
07352 Apt 5
27352 Apt 6
67352 Available
87352 Available
07372 Available
27372 Available
67672 Available
87372 Boiler Room
07392 Available
27392 Available

67392 Available

87392 Utility Meter Room

To accomplish the ends, it will be necessary to cross-key several cylinders. The front and rear doors will be cross-keyed (maison keyed) to allow access to all issued keys. The laundry room will be cross-keyed (maison keyed) to accept all tenant keys and management's maintenance staff, but keyed differently than the front and rear doors. The utility meter room will be cross-keyed to accept the boiler room key.

Each tenant will carry their own key, maintenance staff will carry the boiler room key, and "meter readers" and CATV service techs will sign out the utility meter room key.

The cylinders will be pinned to accept the following combinations: (Note: the numbers given are the key biting number and not the master wafer numbers.) (See three charts.)

Note: In chambers where there are five master wafers plus top pin, many lock technicians choose to leave that lock chamber empty - without any pins at all. This practice does not restrict the operation of the key in that position regardless of cut. On the other hand, it is argued that loading a chamber with

FRONT AND REAR DOORS				
Chamber 1	Chamber 2	Chamber 3	Chamber 4	Chamber 5
0	7	3	1	2
2			3	
4			5	
6			7	
8			9	

25 keys will operate this cylinder as keyed.*


LAUNDRY ROOM				
Chamber 1	Chamber 2	Chamber 3	Chamber 4	Chamber 5
0	7	3	1	2
2			3	
4			5	
6			7	
8				

20 keys will operate this cylinder as keyed.*

UTILITY/METER ROOM				
Chamber 1	Chamber 2	Chamber 3	Chamber 4	Chamber 5
4	7	3	1	2
8			7	

6 keys will operate this cylinder as keyed.*

that many master wafers reduces the security of that chamber to the extent that if the wrong key is inserted, jiggling the key will activate one of the master wafers. Additionally, because

the master wafers are only an increment of two, the likelihood of a wafer becoming worn, damaged and binding the lock cylinder is of greater risk than leaving the chamber empty. 



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Test Article #41 **AUTOMOTIVE SECURITY** To be tested in March '94 issue Details in front of issue

AUTO OPENING: THE PRINCIPLES

There are three components to a locked door: the latch, the lock and the linkage. Understanding the relationship between these components is central to choosing the correct method and tools for opening the door.

Latches

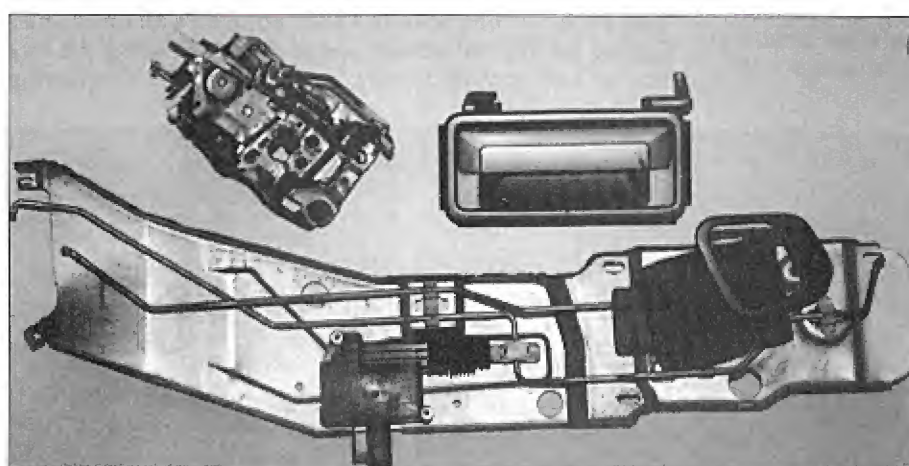
The latch is a mechanical device that typically performs the two functions of latching and locking. While this seems fairly basic, this is actually the focal point of an attack when trying to open a vehicle using door tools. The rods, called linkage, and locks attached to the latch are simply the means by which the latching and locking functions are activated and controlled.

To open a door, with all locks and linkage missing, one need only activate the correct levers of the latch to disengage the locking and latching operation and open the door. To open a vehicle with all linkage and locks intact, simply means that the correct linkage needs to be found for activating the appropriate levers on the latch.

Generally, the latch's latch/release operation are controlled by two separate levers or arms on the latch. One lever is attached to the outside release handle and is operative when the latch is unlocked and inoperative when the latch is locked. The other lever is controlled by the inside release and may operate identically to the exterior release lever or it may be

operative at all times. If this lever is operative at all times, a locked latch can be bypassed by simply operating the inside release lever.

The locking operation of the latch may be controlled by a single two-sided lever or toggle or two separate levers. The levers are connected to an outside lock and an inside locking button. On vehicles with electric locks, the locking solenoid is typically connected to the inside locking button or its lever.



1. This is a sample of a current locking system. This unit contains all of the items necessary for a locking system and is relatively easy to work with despite its complicated appearance.

Linkages

The linkage are the rods that connect the interior and exterior release handles and exterior lock and interior lock button to the latch levers. As implied, there are two types of linkage: Latch linkage and lock linkage.

Latch linkage connect the latch's interior and exterior release levers to the interior and exterior release handles. Being attached to the latch's release levers, the exterior latch linkage is always operative when the door is not locked and inoperative when the door is locked, the interior latch lever may operate identically or

be operative at all times.

The lock linkage connect the exterior lock and the interior lock button to the locking levers of the latch. Most often, it is this linkage we attack when using door opening tools.

Linkage, both lock and latch, will run in one of two directions: Either moving from the front to the back of the door in a horizontal direction, or moving from the top to the bottom of the door in a vertical direction. As might be expected, linkage is often referred to as either horizontal or vertical. The direction of the linkage often defines the method and tools used for opening the car when using door tools.

Often linkage is connected in series by a piece of metal serving as a pivot or swivel called a bellcrank. The bellcrank is used to either reverse or change the direction of the adjoining linkage, or to compensate for a severe angle

that a single piece linkage rod may not be able to make (horizontal to vertical, for example).

Bellcranks attached to the interior lock or release handle linkage are often our focus of attack, because they require a minimal amount of movement and leverage to operate the lock or latch. During the mid to late 1980's, many auto manufacturers started covering the linkage with plastic shrouds or hiding them behind panels to prevent easy access into their vehicles. This made bellcrank entries all the more common. In some cases, as we will see later, the

bellcrank may be hidden and require specially bent tools and the mind's eye to find.

Exceptions to horizontal and vertical linkage are those driven directly off the lock pawl or tailpiece. Some Mercedes, for example, have a long shaft tailpiece that goes directly into the back of the latch. Volkswagen have a "V" shaped pawl that cradles the latch's lock lever. And the older, French Renaults (typical of those with the Nieman door lock) have a thin, finger like pawl that drives the lock lever.

Locks

The last component to car door locking system is the lock itself. Locks are either pin tumbler or wafer in operation. High security systems incorporate oddly cut keys and specially shaped tumblers. However, except when using impressioning to generate a new key or picking to open the vehicle, the tumbler assignment and configuration for most locks is not an important factor for opening a car. Instead, there is more concern with the cam and its operation.

Up to about 1980, a majority of the vehicles on the road had door locks with a lazy cam. A cam is the flat metal tailpiece that is attached to the lock linkage for locking and unlocking the latch. A lazy cam is a cam that moves freely up and down. Cars with this type of lock were fairly easy to open as a simple flat steel opening tool was used to push or pull the cam up or down, unlocking the latch.

From roughly 1980 up, many manufacturers changed to a rigid cam lock. In this case, the cam cannot move free from the rotation of the lock's plug. Using a tool cannot move the cam or pawl, thus, preventing the car from being opened.

Also, about this time, more and more manufacturers started adding shields around the lock, the linkage and the latch. Today finding methods, techniques and tools to bypass the protection is critical to successful car opening. Understanding the components to a locked car door, one can now formulate a few principles for opening a locked vehicle. In any attempt to open a car, the latch must be unlocked and the latch mechanism released.

The unlocking and releasing of a latch can be affected by these methods:

- Direct contact and activation with the latch's lock and release levers.

- Contact and activation of the linkage rods, and/or their associated bellcranks, to unlock and release the latch.

- Contacting and activating the lock pawl of a lazy pawl lock.

- Activating the lock cylinder or an interior lock button.

For vehicles where the interior release handle is operational with the latch in the locked condition:

- Activate the interior latch release handle.

- Contact and activate the interior latch release handle linkage or associated bellcrank.

Opening a vehicle, then, is simply a matter of finding the correct, best or easiest technique to affect one of the principles.

Entry Techniques

The above principles in mind, there are six techniques available for entering a car. Let's briefly outline and describe them, covering them in detail in future articles.


1. Picking - the manipulation of the locks tumblers to align at the shearline, allowing the lock to be operated without a key.

2. Impressioning - fitting a key to a lock by inserting a keyblank into the lock and manipulating the key to obtain marks as indication of where a deeper cut is needed.

3. Wafer Reading - determining the biting of a key via the reading of the wafer tumblers within the lock.

4. Key Reading - visually identifying the biting of a key and replicating that biting onto another blank for the purpose of opening or operating the vehicle's locks.

5. Door Tools - the tools used to bypass the locks and locking devices on a vehicle in order to gain entry to or use of that vehicle.

6. Force Tools - the use of tools to compromise the locking integrity of a lock by the use of force. (These methods, such as drilling the lock, while affective, necessitate repair afterward. These methods will not be covered as we are concerned with surreptitious entry.) 



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Test Article #42

ELECTRONIC SECURITY

To be tested in
March '94 issue
Details in front of issue

MORE THAN A METER READER

Last month's article gave an overview on the use of the analog volt/ohm meter or VOM and the digital multimeter or DMM, one of the basic pieces of equipment needed by the electronic locksmith. This article covers the reading of the analog VOM.

While the digital multimeter or DMM is becoming increasingly popular due to its easy read display and auto range capability, the analog meter is still widely used and typically the meter of choice for beginning technicians. Of course, with the use of an analog meter comes the necessity for understanding how to use and read it, including setting the proper function and range. While from one to the next, analog meters vary slightly in function



1. The typical analog VOM with test probes.

and range, most all measure AC and DC current for volts, resistance in ohms, and current in amps.

Looking at the meter in photograph one for the first time may seem pretty confusing and intimidating. But when broken down and examined closely, it really is quite simple.

First let's look at the gauges or scales on the display of the meter. On this meter's display, the scale for resistance in OHMS is found at the top. The next scale down is the DC voltage and current (in amps). The next scale down is the AC voltage. The last scale is a decibel meter. Because the decibel function is used for making power output and frequency response measurements on amplifiers and similar equipment, its use will not be covered in this article.

Also on this meter, just below the

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OHM scale, is a mirror. The purpose of this mirror to correct for any parallax error in reading the meter, caused by not reading the needle indicator from a perpendicular angle. When viewing, the reflection of the needle should be directly behind the needle and, thus, not seen. This assures a proper angle of view and an accurate reading of the scale. (See photograph 2.)

Before making any measurements it is necessary to adjust or zero-out the meter's needle indicator. This is done through the Zero Adjust Screw, found, on this model, just below the scale display area. With the unit in the off position, turn the screw such that the needle indicator is centered over the zero index marks on the scales. This adjustment will calibrate the meter for making voltage and amperage measurements. Adjusting the meter for reading resistance is done through the Zero Ohm Adjustment dial, covered later in this article. (See photograph 3.)

Typically two test probes come with the meter, one red and one black. The black probe is always plugged into the common or negative (-) jacks of the meter. The red probe is plugged into the positive (+) jacks of the meter. While the meter will work if the wires are reversed, doing so may cause confusion later as this violates the standards currently used.

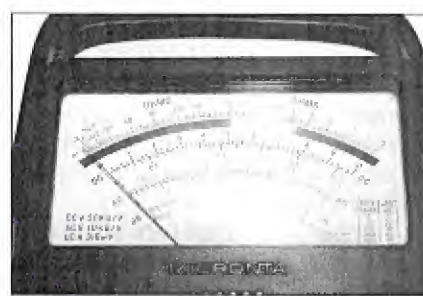
Looking closely at this meter reveals six jacks. The three to the right of the meter are for higher end voltage and amp readings not typical for low voltage installations.

To the left of the meter are three jacks; one for the common or negative (-) test probe and one for the positive (+) test probe, and an output. Of most concern to us is the common and positive sockets. On this meter there is only one jack for the (-) common probe marked by (-)COM. The writing to its lower left indicates that the maximum voltage that can be applied to this probe is 500 volts.

The jack directly to its right is for measuring voltage, resistance and current with the (+) positive probe. This is indicated by the writing directly above the jack that reads (+)V-Ω-A. The maximum electrical measurements made using these two jacks: 300mA DC and 300V AC/DC.

To make any measurements that exceed these limits, it is necessary to move the red probe to the appropriate jack on the right side of the meter.

While most meters do not come



2. The display of the analog VOM is made of several scales and an indicating needle. Many, like the one pictured here, come with a mirrored strip for more accurate readings.

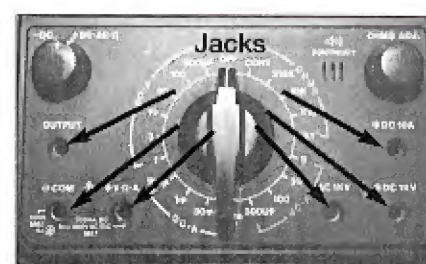


3. Before making measurements, the Zero Adjust Screw is used to zero the indicating needle on the scales.

with an output, models such as this one do provide a voltage output to allow for different types of testing that go beyond our need and the subject of this article. (See photograph 4.)

Also, on the face of this meter, there are two dials. The one on the left is the polarity reversal dial, marked: -DC +DC AC Ω. When testing DC circuitry it is sometimes difficult to visually discern between a (+) positive and (-) negative wire or run. Many times the test probes are reversed when trying to measure an unknown circuit. The black or common probe may be touching the positive end of a tested circuit while the red or positive probe may be touching a negative or ground end.

In cases like this a DMM will simply relate the correct measurement on the display by placing a minus (-) sign in front of the measurement. Using a VOM, however, we cannot get a minus sign. Instead the needle indicator will move and peg itself in reverse. If this is the case, the technician can either remove and reverse the probes or he may simply turn the polarity reversal dial from the +DC AC Ω position to the -DC position. The meter's needle



4. This meter has several jacks to be used for testing the various range of measurements.

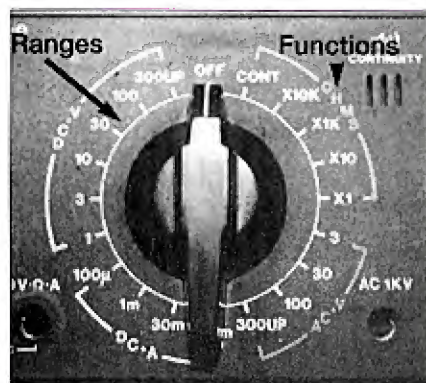


5. Do not hold the test probes in place until the correct range has been determined. Place the black, common probe on one end of the circuit. Quickly tap the other end of the circuit being measured with the positive, red probe. Make sure that the indicator needle does not peg itself on the other end of the scale. If it does, move up one or two range settings. If the needle does not move enough, go to the next lower range.

indicator will then make the measurement as though reading correctly. It is up to the technician to remember the polarity is actually the reverse of what is being read.

The dial on the other side of the meter is the Zero Ohm Adjustment (marked OHMS ADJ.) and is used for zeroing-out the ohm scale. Before making any resistance readings, the meter's indicating needle must first be set or adjusted to zero on the ohm scale. To adjust the Ohm scale, touch the end of the two probes firmly together. Theoretically there should be zero resistance between the probes. However, due to temperature, the shape and age of the equipment, etc., the meter will not read exactly zero. Therefore, the Ohm Adjustment dial is used to zero out the needle indicator before taking any resistance measurements. (See photograph 5.)

Now, let's take a look at the last item to be addressed on this meter - the function and range selector. On this meter, both selections are made using the one large rotary switch at the center of the meter. On other meters, including some DMM's, there may be a separate switch for each.



6. The functions of this meter are displayed with brackets and are furthest from the center of the rotary switch. The ranges for each function are close to the rotary switch and within the brackets of the function.

Meter functions include measuring for voltage, resistance (in ohms), and current (in amps). Other measurements, such as the decibel scale, are a function of the other measurements.

Ranges for meters, again, will vary from one model to the next. The range that is being selected or indicated is the maximum for that setting. If a measurement is being made that is going to exceed that setting, the range selector should be set to the next highest range.

With the ranges are various symbols and letters that signify in what units or increments the measurement is being made. Generally measurements will be made in increments of kilo (K), directly, milli (m), or micro (μ). Lets clarify what these mean.

Kilo means 1000, and is indicated by the capital letter "K," and means the preceding number is multiplied by 1000. 1KV, for example is actually 1000 volts, 3.2KV is 3200 volts.

Milli means 1/1000, and is indicated by the small letter "m," and means the preceding number is divided by 1000. 3mA, for example, is actually .003 amps. 450mA is

45 amps.

Micro means 1/1,000,000, and is indicated by the symbol "μ," and means the preceding number is divided by 1,000,000. 200μA, for example is .0002 amps, 3235μA is .003235 amps.

Sophisticated meters with even smaller ranges are available, but usually of little use to the electronic locksmith.

To use the meter, then, the function must first be chosen. The functions for the meter in this article are bracketed and listed furthest from the center of the dial: OHMS, AC•V, DC•A, DC•V (moving clockwise from the top). Notice that there is no function for measuring AC current (AC•A). For most VOM's that measure AC current, AC is first changed to DC through the use of bridge rectifiers. The result for most meters, except the expensive models, is that there is a larger range of error in accuracy for this measurement; although those that do offer it are accurate enough for our purposes. (See photograph 6.)

Once the function has been chosen the range must be selected. Many of today's DMM's have an auto range finder, and this setting is not necessary. For a VOM, however, it must be selected. In making the selection choose the range that is higher than the expected

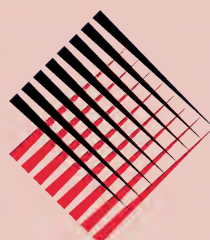
measurement. For example, if the expected voltage measurement of a battery is 12 volts, the range setting for this measurement must exceed 12 volts. If the range is too high, then select the next lowest range. It's always better to start too high and work down than to start too low and possibly damage the meter! (See photograph 6, again.)

Okay, lets look at our meter and the ranges offered for each function. Starting with the OHM function, the first possible selection moving clockwise is CONT or Continuity. This setting allows the technician to test for a closed circuit. In this particular meter a small piezo sounder is heard when there is continuity in the tested circuit. Other meters may display this by the moving of the indicator needle or lighting a light.

The next range readings of the Ohm function are preceded by an X. This indicates that all measurements displayed on the scale are multiplied by the following number. For instance, X1K means that the scale's reading is multiplied by 1000. If the technician is given a scale reading of 8.5 at this range setting, the actual resistance is $8.5 \times 1K$ or 8.5×1000 , or 8500 ohms. Likewise, all readings made under the X10 range are multiplied by 10. All readings made by the X1 range are multiplied by one or are read directly.

The next function is measuring AC voltage. There are four ranges on this meter: 3, 30, 100 and 300UP. These are the maximum values for each range. The 300UP range is for measurements up to 300 volts with the red test probe in the jack next to the common jack. For readings of 300 volts and over, the range selector must be on the 300UP setting and the red probe moved to the AC1KV jack on the other side of the meter.

There are two series of numbers on the AC scale, one above the scale and one below. The range chosen determines what number line on the AC scale is to be read. The top number



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line goes from zero to 10. The bottom line from zero to three. To decide what line to read, simply look at the range chosen.

Ranges 3, 30 and 300UP are read on the zero to three line on the bottom of the AC scale because these measurements are done in factors of three. When 3 is the chosen range, all of the measurements on this bottom line are read directly with each sash mark, or increment, indicating .1 volts. If the indicating needle stops at 1.5, the measurement is 1.5 volts.

When using the 30 range, use the bottom line of the scale. Only in this case, each measurement is multiplied by 10. Therefore, the 3 at the end of the scale is actually 30. Each of the sash marks, or increment, is now equal to 1 volt. A reading of 2.5 is actually 25 volts.

When using the 300UP range, each sash mark, or increment, is 10 volts. And each reading is multiplied by 100. A reading of 1.5, for example, is actually 150 volts.

When using the 100 range, the top line of the AC scale will be used. Because the last number on this scale is 10, all numbers are multiplied by 10 to obtain the correct reading. In this scale, each sash mark, or increment, is equal to 2 volts. For example, if the indicator needle aligns with the number 2, this equals 20 volts. If the indicator needle aligns two marks right of the number 2 it equals 24 volts.

The next function in order is the DC•A or DC current function. Like the AC scale, the DC scale has both a top and bottom number line, that is read identically. Those measurements that are factors of three use the bottom scale, and those that are factors of ten use the top scale. As seen by the ranges available, the current is measured in milliamps (mA) or microamps (µA). For measurements exceeding 300mA the range is set to 300m and the red test probe is moved to the (+)DC 10A jack on the other side of the meter.

The final function on this meter is the DC volt reading. Again, use the DC scale and read it as was described for the AC voltage scale. Those ranges that are a factor of three are read on the bottom number line, and those ranges that are a function of 1 or 10 are read on the top number line.

Having a basic understanding of reading an analog meter, lets set down some guidelines for making measurements.

1) Zero out the meter using the

Zero Adjustment Screw.

2) Select the function. What is being measured: Volts, Current, Resistance?

3) Select the range. Place test probes in appropriate jacks for the expected range. Set the range indicator one setting above the expected measurement.

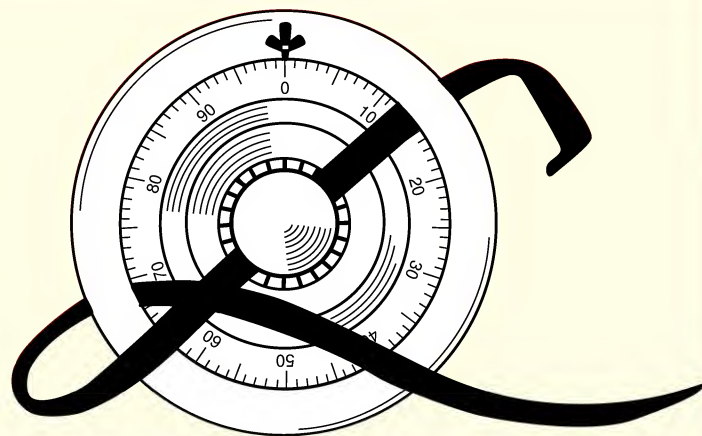
4) Always move from highest to lowest when deciding on the proper range.

5) Do not hold the test probes in place until the correct range has been determined. Place the black, common probe on one end of the circuit. Quickly tap the other end of the circuit

being measured with the positive, red probe. Make sure that the indicator needle does not peg itself on the other end of the scale. If it does, move up one or two range settings. If the needle does not move enough, go to the next lower range.

6) Choose the range that puts the indicator needle at the center of the scale. The most accurate measurements are made when the indicator needle is at the center of the scale.

Next month we'll apply the use of a meter to measuring a battery and power source, locating a short and measuring the current of a circuit.



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BEGINNER'S CORNER

Chrysler Ignition Rekeying

Working with the Chrysler ignition locks has been a good education for me, mainly because most of my lock work is with residential and business. However, the auto locks that I do work on, I learn all I can about them, then add to my tools and supplies so I can take care of future work.



by
Eugene Gentry

Automobile lock repair is a specialty requiring knowledge and experience, along with tools and pinning kits. A general locksmith should do this type of lock work, and should take the time for training in classes that are offered.

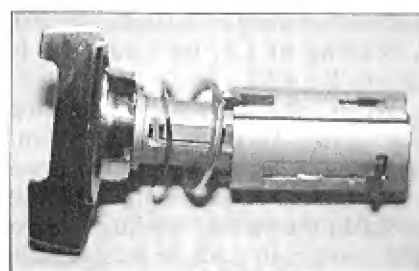
He should get all the manuals and books relating to the subject. This is a good paying field, and is worth the effort to train for it.

All-Lock Co. Inc. sells automobile ignition, door and trunk locks, and auto pinning kits through distributors. (See photograph 1.) On the left, is the Chrysler sidebar lock service kit, part #A-6150. It contains tumblers one through six, the tumbler springs and pin covers. On the right is the Chrysler Pinning Kit, Part #A-6015. This kit contains top and bottom pins, one through six, springs, and four different types of retainers.

Photograph two is a Chrysler sidebar ignition switch, All Lock part #1445U. It is used on Chrysler tilt steering columns for 1974 to 1990



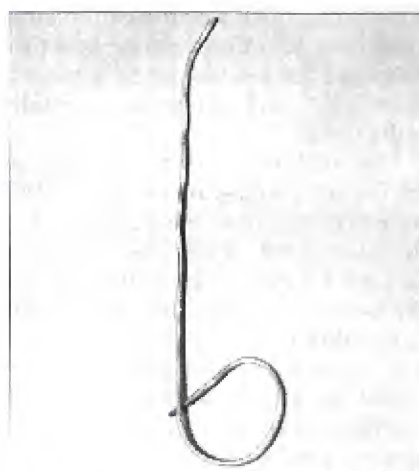
1. Chrysler pinning kits from All-Lock.



2. Chrysler side bar ignition used in their tilt wheel vehicles.

models. It is similar in appearance to the General Motors ignition lock, but has the Chrysler keyway, and only five tumbler chambers.

To service this lock, when it has been removed from the steering column, a service manual suggests that you first make a tool of bent wire. (See photograph 3.) This is used to depress the buzzer activator mechanism found inside the lock.



3. Make this simple tool to disassemble the lock.

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This activator consists of two parts, one large piece found on the back of the plug and another smaller piece that fits into the cylinder or shell. (See photograph 4.) These two little parts might cause you trouble when disassembling or assembling the lock.

The first step for the plug removal from the cylinder is to make sure the plastic buzzer activator on the cylinder or shell is protruding. Then, using a key, turn the ignition switch to the accessory position. Just below the wings or face plate of the lock are two brass detent pins. Using the bent wire, depress the pin that nearest in line with the shell's plastic buzzer activator. This will allow the plug to move slightly beyond the accessory position. At this point, you should be able to pull the plug out of the cylinder. If it comes out only about a 1/4", then you will have to pull out the plug's plastic buzzer activator. If there is still a hang up, use the wire tool and at the rear of the cylinder depress the plug's plastic buzzer activator.

If you do not have a key for removal, then you will pick the lock to remove it. To do this you will have to drill carefully through the case to the sidebar. Once drilled, depress the sidebar with your wire tool and rake the wafers to pick.

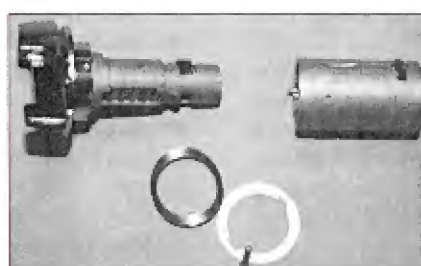
Now that you have the plug out of the cylinder, you can see there is a spring ring and a collar. (See photograph 5.) Place the plug in a holder, and change the wafers, if you are rekeying. Be sure the indentation in the wafer is on the side of the sidebar. The pin cover is offset, so turn it so that it covers all the wafers. Stake the edges of cylinder. To do this, take a small flat blade screw driver or small punch and a light hammer. Place the blade of the screwdriver over the area where the pin cover has been placed into the cylinder. Tap the area over to force the edges of the cylinder over the edge of the pin cover.

To assemble the lock, place a little grease on the buzzer activator parts. This will help hold them in the proper position. Place the spring ring and collar on the plug. Hold the cylinder in your left hand, with your forefinger inside the cylinder to hold the buzzer activator out. Hold the plug, wafers up, lining up the lugs on the plug with the broachings in the inside cylinder. Push the plug into place. Turn clockwise to latch it.

Photograph six shows a standard

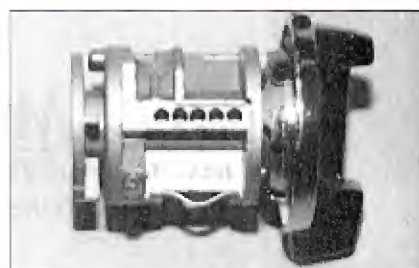


4. These two plastic parts on the plug and shell make up the buzzer activator.



5. A disassembled Chrysler ignition.

Chrysler ignition lock, All-Lock part #1446U. This is a pin tumbler lock, and is used on standard steering columns for the years 1974 to 1990. This lock is easier to work on than the sidebar as it does not have to be



6. This pin tumbler Chrysler ignition is found on non-HI models.

disassembled to service. You can see the retaining pin that holds it in the steering column located at the rear of the cylinder.

When you are removing the pin retaining cover from the old pins, do not force it off as the edges of the metal of the cylinder will break off. Instead, use a small file, and file off the staked edges until it is free.

Put in your new pins for rekeying, put on a new pin retainer cover and stake the edges of the new cover to hold it in place. The lock is now ready to be replaced in the steering column.

If there are items of interest that you would like to see in the Beginner's Corner, write to me, Gene Gentry, in care of *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

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*Cover
Feature*

TNL'S MOST EXCELLENT ADVENTURE

"Look out Bill and Ted! It's time for The National Locksmith's most excellent adventure. We'll take a drive through the recent history of automotive locks."

Look out Bill and Ted! It's time for The National Locksmith's most excellent adventure. However, instead of repeating the quest of these two adolescents, who pillaged man's history from a mobile telephone booth, we're going to take a nice brisk drive through the recent history of automotive locks. So, fasten your belts and let's go.

To keep the trip fresh, we'll start our tour from the 1960's. Domestic vehicles dominated the US market with the German and British vehicles filling a specialty market. Japanese cars were almost unheard of. Ford, Mercury, General Motors (Cadillac, Chevrolet, Pontiac, Oldsmobile and Buick), Dodge/Chrysler, Jeep and Rambler/AMC controlled most of the roads and filled most of the gas stations.

Vehicle locks at the time constituted more of a convenience than a true attempt at protecting the vehicle and its contents. The fact that any lock could be easily bypassed truly gave credence to the old adage: "locks are to keep honest people honest."

Door locks in the vehicles came equipped with lazy cams and unshielded locks and linkage. A flat steel opening tool or coat hanger generally comprised the contents of an entire car opening kit. Car openings were happily handled by the person nearest a coat hanger, including police, tow truck operators and gas station attendants.

Ignition locks, as well, were easily bypassed. Being dash mounted, there was no steering wheel lock mechanism. Ignition "ON" and "START" wires were easily accessible from under the dashboard. The lock itself simply served as a large rotary switch, and could be easily removed and replaced.

Cars typically had two keys. With some variation, a primary key fit the door and ignition while a secondary key operated the glovebox and trunk lock. While import vehicle's were using double sided keys, domestic vehicles continued to use single side keys and locks up until the mid to late '60's when Ford introduced a double sided convenience key. This system is still being used today.

The highest security lock used in domestic autos during this time was Briggs & Stratton's sidebar lock that incorporated a wafer tumbler and a locking sidebar arrangement. Until more recently this lock has been virtually unpickable and unimpressible. And while Chrysler and Ford locks utilized a pin tumbler lock, GM, Rambler/AMC and Jeep used wafer tumbler locks.

For the locksmith, those were the days (or at least I've heard it said). Simple, straight forward repair and replacement of the lock. Keys were easily duplicable. Car openings were not an issue, and codes existed on many of the door and glovebox locks.

Cruising into the late '60's and early '70's brought a turbulent time and bumpy course for the locksmith. Domestic and import vehicle lock evolution occurred almost every day, keeping the need and competency of the locksmith in high gear.

The biggest domestic change came with the move to column mounted ignitions that incorporated steering wheel lock mechanisms, tilt wheels and telescoping wheels. These changes marked the beginning of a trend towards higher security and the

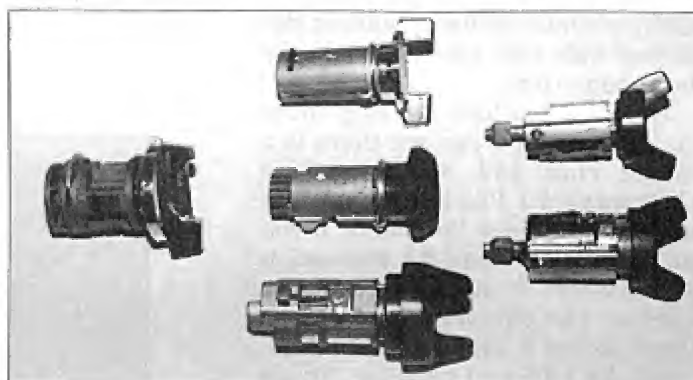
need for more training and competency on the part of the locksmith.

The General Motors Saginaw column was the monster to overcome during this time. A totally integrated system that included the steering wheel, horn pad, steering wheel lock mechanism (added later), turn signal and horn wiring, the shifter, buzzer activator, rack and sector gear assembly, and ignition cylinder. The ignition cylinder's early version used a crescent shape, free moving, plug retainer.

Jeep used the same ignition and column using their own keyway.

Chrysler adopted this same ignition for their tilt column vehicles, but used their own version ignition cylinder for the non-tilt column. The first version of this ignition switch used a crescent shaped retainer as well. This soon changed to a button retainer.

Ford incorporated an ignition cylinder with a button retainer that could only be depressed after turning the switch to the "ON" position. A later version added an interlocking tailpiece. (See photograph 1.)



1. The move towards better security during the late '60's and early '70's prompted domestic auto manufacturers to produce column mounted ignition switches such as the ones above.

Like the "horror stories" told every time a new advancement is made to vehicle locking systems (VATS and airbags for instance), the locksmith feared liability problems. Most of the concern focused on the steering wheel locking up after an ignition had been replaced, and a fear that there would be unknown and recurring electrical problems from removing the turn signal assembly. This fear was inflated by the removal of the primary key codes from the door locks of most domestic vehicles.

Door locks through these early years remained the same. Door panel removal was necessary to service or replace the locks. Door locks for the most part, both domestic and import, remained separate from the door handle unlike many of today's integrated units.

Let's not forget the early '70's Oil Producing European Countries (OPEC) oil embargo. This unfortunate incident of world politics and business had created a demand for small, gas efficient vehicles here in the United States. Domestic manufacturers

retreated in the process, opening a soon-to-be ever widening market for the economical and inexpensive Japanese vehicle.

The mid '70's and early '80's, still in the grasp of the gas crunch, fueled the sale of Japanese vehicles. The automotive locksmith now had to become familiar with new double sided keyways, a one key car utilizing a master and valet key system, new key codes, new car opening techniques and tools, and new door and ignition styles.

Unlike the domestic variety, the ignition and column arrangement on Japanese vehicles was modular. Columns had easy to remove, usually two piece, shrouds. The ignition cylinder and steering wheel lock mechanism were contained within a single housed unit and released from the column through the removal of a clamp. In most cases the clamps were held in place with at least two shear head bolts - new and frustrating contrivance for the automotive locksmith.

Relieving some of the tension built up with the invasion of new foreign lock technology was the consistency with which key codes were stamped on the passenger door lock. Even today this practice continues in most import vehicles.

Of course, with all this new "stuff" came the need for servicing these vehicles.

The need for information spurred such men as Lynn Hawkins and Dennis Baxter to create foreign auto lock repair/service manuals. Code books supplied by numerous companies became a necessity. Auto Security Products started, purchasing and reselling foreign automotive locks, lock components and pinning/service kits.

From the domestic end, All-Lock started production of aftermarket domestic vehicle ignition and door locks, and eventually entered into the aftermarket (and much later into OEM) import lock production.

And except for GM changing their ignition cylinder to being screw retained for better security, the domestic column remained fairly standard for all manufacturers through this time. Security to door locks, however, became more important. Guards and covers started appearing over locks. The early '80's saw the introduction of the fixed pawl lock, making car opening a little more difficult.

From other corners of the world came "high security" locks and keys. Most noticeably the Mercedes Benz two and four track sidewinder keys and split wafer locks. (Other hard to cut keys such as dimple keys had existed on vehicles through this time as well.) Of course, this meant new knowledge, new servicing, new equipment.

Taking a roller coaster trip through the mid to late '80's, the automotive perspective, both domestic and foreign, changed. Domestic manufacturers formed alliances with foreign

manufacturers to form stronger more cohesive efforts to challenge a growing "world economy." Honda, Nissan and Toyota all moved production facilities to the United States. Unknown hybrids such as Yugo, Hyundai, and Daihatsu made strong showings in the



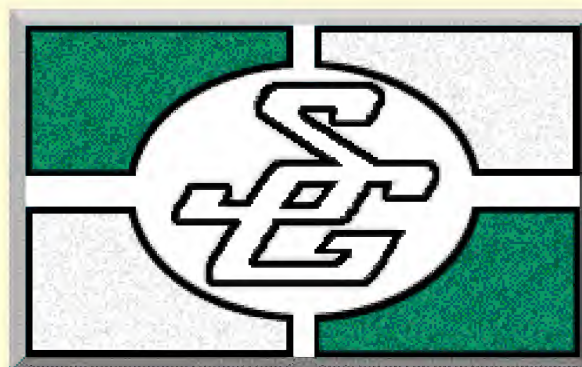
2 Not even the ignition locks are escaping the incoming tide of electronic technology.

Continued on page 94



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*Cover
Feature*

THE AUTO LOCKSMITH'S NEW PAL

"Using a service your company already offers saves the time and money needed to acquire the tools, training and new customers chasing a new market."

by Andy Foster

Going after new markets is one way to increase business. Too often overlooked, however, is building up the client base of a market your company is already serving. The advantage to this approach is simple. By finding new approaches and niche work using a service your company already offers means you can save the time and money needed to acquire the tools, training and new customers chasing a new market.

This type of approach is especially true for the automotive locksmith. Generally, automotive lockouts, key generation, and repair and service for this group has been limited to retail customers and auto dealerships. Missed are the thousands of other businesses that need the services of an automotive locksmith without knowing where to find that service.

Every day auto body shops and garages replace locks on their customers' vehicles. To purchase the locksets they go to the auto dealer. In almost all cases, the new locks are not keyed to the customers' original lock. This often becomes a point of contention between the customer who wants to retain the convenience of his original key system and the auto body shop or garage who doesn't know where to turn for such service.

The amount of income available to an automotive locksmith tapping into these customers is unlimited. But how can your company reach these prospective customers? Auto-Security Products (ASP) has the answer: The Professional Automotive Locksmith (PAL) program.

This program is designed to promote a partnership between the locksmith and the body shops throughout North America by providing a vehicle for both parties to work together for the benefit of each other and the consumer. Currently, about 500 locksmiths have already joined the program since its inception in October 1993.

Body shops have been utilizing locksmiths for several years to simply rekey the locks on whatever vehicles they were repairing. However, they also have usually bought the lock itself from the car dealer. So, in most cases, the locksmith simply got the rekey work and not the sale of the lock. ASP wants that to change and that is the primary reason behind the PAL program.

To announce this new program to body shop industry,

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recode the new lock to fit the original key, thus preserving the original one-key operation system of the car. Find out more about what your Professional Automotive Locksmith can do for you! Get your free copy of Catalog No. 12-OEM-A, which lists all known original equipment part numbers of replacement ignition, door, and trunk locks for Asian vehicles. For more information please contact your local Professional Automotive Locksmith or

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Directing more business back to the locksmith, ASP has placed this ad with body shop trade magazines. Body shop inquiries are referred to Professional Automotive Locksmiths serving their area.

ASP has taken out advertisements in two of the largest trade magazines read by this industry. These ads specifically point out the advantages body shops will have by giving all the lock business, purchase and rekey, to the locksmith.

ASP has also produced catalog 12-OEM which is a parts guide listing the most common Asian locks with descriptions, OE part numbers and ASP part numbers. This catalog allows the body shop to easily cross-reference the lock they need so they can easily order it from the locksmith.

The locksmith, to take full advantage of this program, needs to do some self-marketing on his or her own. They should call ASP or their favorite ASP distributor and request several copies of catalog 12-OEM. Then take the book, which has a space on the cover for the locksmith's own name, and go call on the body shops in their neighborhood.

When trying to sell services to the body shop, the locksmith needs to emphasize the completeness he or she can offer. The body shop will no longer wait up to two weeks for a lock to come in from the car dealer and then have to send someone over to the lock shop and stand in line to get the lock rekeyed.

Under the PAL program, the body shop can get the lock right away since the locksmith will have it in stock, or, in the case of a less common lock, in a matter of a few days, should the locksmith have to order the lock from their ASP distributor.

Also, the locksmith can provide further timely service by selling the body shop the lock already keyed up to whatever code is necessary for the specific vehicle. Since the body shop would be more of a premium account, the locksmith can even provide delivery service for a nominal extra charge.

The bottom line is that by utilizing their knowledge of automotive locks and lock parts along with providing a service, locksmiths can increase their business and become a more profitable operation without the need for tapping into new markets.

For more information on the PAL program, or to enroll in it, contact either your ASP distributor or call ASP at 206-556-1900 or fax them at 206-558-1205.

*Cover
Feature*

LIFE IN THE FAST LANE

"Currently 70 percent of Locksmith Pro's business is made from doing auto work, which includes over 30 auto dealers, rental agencies and body shops."

by Don Probasco

What do you do when you wake up on Monday morning after a "major falling out" with an employer and find yourself unemployed? Well, if you have a work history that includes managing for the Taylor Lock Co., being a manufacturer's representative for Dominion Lock and All-Lock, teaching automotive opening for All-Lock, and working for a locksmith distributing company ... you open your own locksmith shop.

And that's exactly what Guy Anderson, owner of Locksmith Pro's in Park Ridge, Illinois did in 1990. Starting off with a small van, a workshop in the basement and over 15 years experience with auto locks he was on his way.

Before he started, however, Guy looked over the market in his area. Right down the street operated a large locksmith company that has been in business some thirty to forty years. This particular competitor has seven or eight inside counter people and thirteen trucks with the majority of business being commercial accounts.

Common sense told Guy making inroads on an established company such as this would be difficult. Knowing, however, that only a small portion of their business was automotive work, they were not geared for the quick response needed by the auto businesses in the area. Guy knew that the automotive portion of the locksmith business was not being serviced to its fullest in the area.

With this information in hand, Guy started calling on all types of business that used an automotive locksmith. Because he was the "new kid on the block" he knew he had to offer these companies something they weren't getting from their current service - Availability! He'd sell them fast service, 24 hours a day, seven days a week.

This particular selling point proved to work. For the first two years Guy did not take time off or a vacation outside of the range of the pager or telephone. Selling himself as a 24 hour service, he wasn't about to let his customers down.

Today his perseverance has paid off. Locksmith Pros is now a retail shop complete with three employees and three vehicles. And while servicing all tasks associated with locksmithing Guy mostly enjoys electronic security and, his forte, automotive locksmithing. Currently 70 percent of his business is made from doing auto work, which includes over 30 auto dealers, rental agencies and auto body shops.

What type of auto work does Guy enjoy the most?

"Exotics and new model vehicles that have limited information written on them challenge me the most," he said.

Like all locksmiths, Guy has his "on the job" stories, both the good, the bad and the ugly!

Recalling one nightmare Guy relates a job involving a Toyota MR2.

"It was when the body style had just changed," he said, "that was right around 1990 or 91.

"Making keys for it was simple, but opening took me roughly 45 minutes. And for anybody that does a lot of auto openings, this is an eternity.

"What I ended up doing was using an Under-The-Window tool to get it open. In the process the tool got caught between the window and the window track.

"I ended up cutting the tool to get it out of the car." Guy finished.

With 15 years experience, this type of trouble opening a car is very rare for Guy. However, even some of his simplest calls can be frustrating.

"About one o'clock in the morning an older guy calls me from a Citgo gas station and says he's locked out of his car. I questioned him a little bit because I don't like to get burned," Guy says.

"And while I'm talking to this guy he asks that I hurry up because it's so cold outside.

"I suggested he and his wife go inside the station and wait for me, when he tells me his wife is in the car.

"Well, why don't you just have her open the car?" I said."

"We've been trying," he said, "but she has Alzheimer's and is unable to do it" Guy continued.

"When I asked why he didn't call the police, the old guy said he did and the police wouldn't do it. Even with the woman locked inside!"

"So, I went out and opened the car for nothing! And the next day I went over to the police department and read them the riot act.

"For years they want to compete with me on opening cars and when someone's health is at stake they don't want to get involved.

"Does that make sense to you?" Guy asked.

When asked for his recommendations to locksmiths Guy had a two part answer.

"First, before even opening up a business, check out the area and see what is not being done. Find a niche, a service that isn't being offered by another company in the area.

"Second, get all the information, service manuals and training you can. Go to junk yards, lease a car, buy the locks if necessary, but work on these locks before you try it on a customer's car.

"Locksmiths have to realize and learn about the advances in technology. They have to know what they are doing - they have to realize that their work, if done incorrectly, could kill somebody.

"There is a much higher demand for competent locksmiths today. The 'hackers' will not survive in today's locksmith trade."



DON'T LET ADA BE YOUR HANDICAP

"The Americans with Disabilities Act is not easy to understand, and the past years have brought forward misinformation and confusion about the law."

by Peter J. Lindemann

A new civil rights law for people with disabilities was delivered in front of three thousand people on the White House lawn on July 26, 1990. It was an historical benchmark and a mile stone in America's commitment to full and equal opportunity for all people in the United States.

However, the Americans with Disabilities Act, known as ADA, is not concise or easy to understand, and the past years have brought forward more misinformation and confusion about the new law than clarification.

Many people and organizations called ADA compliance experts, such as general contractors, architects, and attorneys, have marketed ADA advice packaged with their regular services. Reliable, unbiased, usable information is hard to get and not all organizations are affected in the same way. The law covers so many topics that it is advisable to know the facts before making recommendations.

ADA In A Nut Shell

Title I: Employment: Prohibits discrimination in employment against qualified individuals having disabilities.

Title II: Public Services: Prohibits discrimination in programs run by public entities, such as state and local governments or agencies, including public transportation.

Title III: Public Accommodations: The requirements of this title extend to owners, operators, lessees of public accommodations. The provisions on alterations and new construction apply to owners, operators, and lessees of the public accommodations and commercial facilities. The transportation provisions extend to private entities, whether or not they are primarily engaged in providing transportation services.

Exclusions to this Title: Religious organizations, or entities controlled by religious organizations, including places of worship. Private clubs or establishments exempted from coverage under the Civil Rights Act of 1964. Commercial facilities that are covered

or expressly exempted under the Fair Housing Act of 1968.

Title IV: Telecommunications: This Title requires all common carriers to provide nationwide Telecommunications Relay Services (TRS) no later than July 26, 1993. Any state may choose to set up its own TRS if the facility meets or exceeds the minimum standards established by the Federal Communications Commission (FCC).

TRS is a new telephone service that allows people with hearing and/or speech disabilities to use the telephone. TRS facilities are equipped with specialized equipment and staffed by communications assistants who relay conversation between people who use Text Telephones and people who use the general telephone network. The term Text Telephone replaces the term "Telecommunications Device for the Deaf" (TDD). Text Telephones are machines, usually electronic devices, that have a board readout display. Coded signals are sent and received by text telephones through telephone lines.

Title V: Miscellaneous: This Title consists of various technical provisions, such as: Attorney's fees, Prohibition against retaliation and coercion, Amendments to the rehabilitation act, and others. It contains some of the technical details of the Act in general.

Enforcement: The ADA Police

There is no ADA police department, or is there?

The Americans With Disabilities Act will be enforced by the Department of Justice. Additionally private suits may be entered in a civil action. The plaintiff may request preventive relief, such as a restraining order, or injunctive relief ordering alteration of a facility so that it is accessible to individuals with disabilities.

The US Attorney General may institute a civil action and also demand equitable relief. In addition the attorney general may request monetary damages for aggrieved individuals, plus

civil penalties.

Enforcement is not being carried out as it is by the Occupational Safety and Health Administration (OSHA), where compliance inspections are routinely conducted. This does not mean that noncompliance will be tolerated. The regulating government agencies—the Department of Justice (DOJ), the Architectural Transportation Compliance Board (ATCB), the Equal Employment Opportunity Commission (EEOC), and the FCC—are responsible for enforcing various parts of the ADA. Although there aren't any ADA cops per se, the watchdog groups (i.e. disabled advocate associations, and the 43 million disabled individuals throughout the US) can start a legal action against a company or organization solely on the basis of it's own judgment. In other words, if it appears that the company or organization is not making reasonable accommodations that are readily achievable, a suit may be entered into by the party making the claim. This may prove to have greater compliance enforcement than having an official ADA police agency.

To date, complaints have been received from individuals in forty-nine states and the District of Columbia and relate to all types of public accommodations. Approximately 70 percent of the complaints allege failure to remove barriers in existing facilities. About 20 percent concern discriminatory policies, and ten percent relate to lack of auxiliary aids, usually interpreters for the hearing impaired.

The Department of Justice hopes to complete an evaluation of the cases at the end of the year. The Clinton administration has demonstrated its interest in civil rights legislation, and the ADA is one of the issues on which it intends to focus. One government organization that is gearing up for action is the EEOC. It has gone on a hiring campaign, adding 250 investigators to its staff to meet the anticipated increase of complaints. It is

Continued on page 36

February 1994

ISC WEST LAS VEGAS



A supplement to *The National Locksmith*

EXHIBITOR LISTINGS

INTERNATIONAL SECURITY CONFERENCE - WEST
FEBRUARY 1 - 3, 1994 SANDS CONVENTION CENTER, LAS VEGAS

A.D.D.M. International Inc.	179
ABM Data Systems	338
Access Control Magazine	810
Acme Security Systems	379
ACM U. L. Monitoring Station	581
Adams Rite Mfg. Inc.	276
Adcor Electronics	349
Ademco	300
ADI	214
Adpro Vision Systems Inc.	724
Advanced Technology Video	682
AES Corp.	294
Aiphone Communication Systems	529
AIREF National Alarm Museum	890
Alarm Industry Products	540
Alarm Lock Systems Inc.	101
Alarm Monitoring Services	797
Aleph International	192
Altronix Corporation	337
Alvarado Manufacturing Co.	426
AMCAT TeleProfit	485
Amcect	565
AMDI	524
American Dynamics	600
American Fibertek	728
American Lock & Supply Inc.	270
American Parking Equipment	865
American Two-Way	597
American Video Equipment	734
AMSECO	230
Amtech Systems Co.	870
Anicom Inc.	679
Apex Security Alarm Prods.	366
Architectural Control Systems	272
Aritech Corp.	506
Arius	760
Arrow Wire & Cable	474
Asian Sources Media Group	483
Asian World Ltd.	752
Atlas Wire & Cable Corp.	332
Audio Technology	774
Bayport Controls, Inc.	732
Bearn Industries	666
Best Lock Corporation	244
BGE, Inc.	326
Bogen Communication	826
Bradley Data Management Group	231
Butterworth-Heinemann	873
Byan Systems Inc.	486
C & K Systems Inc.	220
C.O.P.S. Monitoring	570
Caddx-Caddi Controls	420
Cahners Publishing	788
Capricorn Electronics	522
Cardkey Systematics	370
CCTMA	617
CCTV Corporation	550
Cellular Alarm Products	467
Central Station Services	284
Checkpoint Systems	250
Chinon America Inc.	462
Chugai Boyeki (America) Corp.	650
Code Alarm Inc.	489
Collectech Systems Inc.	798
Condoplex Monitoring Systems	393
Continental Instruments	562
Contractors Wire and Cable	670
Control Systems International	390
Corby Industries Inc.	580
Crest Electronics	193
Crime Blocker, Inc.	599
Crow Electronics Eng. Inc.	185
Crylam Inc.	680
CSB Battery of America	282

Custom Newsletter Concepts	697
Cyplex	189
Dallas Semiconductor	582
D/B Cameras-Microcheck	433
Dedicated Micros	616
Deister Electronic USA, Inc.	376
Detec Security Systems, Inc.	665
Detection Systems, Inc.	450
Detex Corporation	269
Dice Corp.	482
Digi-Spec Corp.	469
Digital Monitoring Products	147
Digital Security Controls Ltd.	314
Ditek, Inc.	280
Doorking Inc.	256
Dorado Systems Corp.	476
Dortronics Systems Inc.	398
DSX Access Systems, Inc.	841
Eagle Security Products	256
Eastman Wire & Cable	832
Elbex America Inc.	613
Electric Lock Supply	181
Electronics Line, USA	355
Elk Products Inc.	484
Elmo Mfg. Corp.	623
Emergency 24	356
EMI, Inc.	742
Energy Electric Cable	353
European Security Installer	897
Europlex Technologies USA Inc.	493
Falcon Electronics	765
Fiber Options Inc.	720
Financial Security Services	139
Fire Burglary Instruments	206
Fire-Lite Alarms/Notifier	132
Flair Electronics	525
FM Systems, Inc.	808
Fujinon Corp.	637
Garrett Metal Detectors	880
Gentex Corporation	783
GNWC Wire, Cable & Network Prods.	373
GPS Standard USA	748
Greenlee Textron, Inc.	583
GRI Telemark Corporation	121
GS Battery USA, Inc.	374
GWR Products	606
Hanchett Entry Systems	381
Hardee-Pickard, Inc.	825
Hawkeye Systems Corp.	536
Hirsch Electronics Corp.	109
Home Automation Association	675
Home Systems Plus	676
Hughes Identification Devices	444
Hunt Electronic Co., Ltd.	819
IDC	655
Ideal Industries Inc.	868
Identicaid Systems	823
Ikegami Electronics (USA) Inc.	661
Impro Technologies	290
Indala Corp.	185
Innovative Business Software	466
Inovonics Corp.	327
Instanet Inc.	786
Intelock	274
Intelligent Controls Inc.	814
Intellisense	228
Interactive Technologies Inc.	120
International Fiber Systems	631

International Electronics Inc.	129
International Loss Prevention of Hawaii	473
International Voice Systems	844
Int'l Video Products	726
Intevac	738
ISO/Rainbow CCTV Lenses	737
J.A.M. Plastics	812
J. C. Gury	198
Javelin Electronics/ATAPCO	108
JLM Wholesale Inc.	125
JVC Professional Products Co.	638
Kalatel Engineering	842
Kantech Systems Inc.	781
Keri Systems, Inc.	885
Ketec Inc.	821
KingAlarm	126
King Central	126A
Knox Company	385
Kowa Optimed Inc.	568
Koyo Int'l. of America	534
Labor Saving Devices	197
Laminex Incorporated	330
Lease Acceptance Corp.	298
Lectrolarm	365
Lee Dan Communications Inc.	876
Level Ten Products	824
Leviton Mfg. Co. Inc.	831
Lindsay Manufacturing	766
Linear Corp./M & S	200
Liton Poly-Scientific	148
Locknetics Security Eng.	266
Louree Electronics	833
MacSema	685
Macurco	573
Marlok Co.	267
Mason & Hanger National, Inc.	285
Math Associates, Inc.	740
Maxwell Co. Ltd.	671
Maxwell Alarm Screens	144
MCS	576
Meridian Technologies	867
MHB Technology	828
Micro Key Software	527
Micro State Electronics	839
Micronetics Design	820
Microwave Sensors	465
Millennium Sensor Corp.	497
Mircom Comm. & Security Inc.	683
Missing Link	686
Monaco Lock Company Inc.	566
Monital Signal Corporation	145
Monitoring Automation Systems	656
Morse Watchmans Inc.	119
Multiplex Technology Inc.	669
Napco Security Systems Inc.	100
Nascom	813
National Alarm Computer Center	544
National Guardian Security	369
The National Locksmith	273
NBFM	882
Network Video Technologies	183
New Heights, Inc.	492
NJR Corp.	169
NKL Safe	190
Northern Computers	108A
Off the Shelf	769
Optex/Optex Morse	116
Osborne-Hoffman Inc.	542

Continued on page 4-ISC

February 1994 • 3-ISC

Continued from page 3-ISC

OSI Security Devices	269
<hr/>	
Pach & Company	180
Pacific Coast Excess & Surplus	175
Page-Com Inc.	779
Panasonic.....	500
PanaVise Products, Inc.....	635
Polco.....	306
Pentax Corporation.....	455
Perrey Turnstiles	806
Pics Photo Ident. Ltd.	176
Plasto/te.....	489
Polyphaser	575
Power-Sonic Corp.	380
Predictive Dialing Systems	283
Premier Data Systems	297
Presarch Inc.	662
Progressive Electronics Inc.	567
Progressive Marketing	186
Proprietary Controls Systems Corp.	520
Protech.....	383
Pulnix America Inc.	425
Pulsar Security Corp.....	174
<hr/>	
OSI Systems.....	898
Quartermaster	598
Quorum Independent Dist.....	173
<hr/>	
Ram Products	866
Remeo Products.....	584
Reproduction Technologies	397
RGB Spectrum	634
Robot Research Inc.	626
Rekonet Inc, USA Inc.	514
Rutherford Controls	275
<hr/>	
Safeguard Security Services Inc.....	143
Safety Technology Intl.....	238
Samsung Optical America Inc.....	162

Sanyo Fisher Corp.	714
Senses International/Safecom	361
Scantronic USA, Inc.	138
Secura Key.....	432
Securtron Magnalock Corp.	320
Security Central	127
Security Dealer/PTN Publishing	472
Security Door Controls.....	115
Security Information Systems.....	429
Security Lock Dist.	479
Security News	399
Security Specialists.....	156
Security Sales Magazine	171
Security Technology & Design	594
See All Industries Inc.....	470
Select Engineered Systems	166
Sensor Engineering Co.	262
Senstar Corporation	579
Sentech Corp.	170
Sentex Systems Inc.	569
Sentrol/ESL	706
Shorrock Electronic Systems.....	141
Signal Cable Co.....	453
Simplex Access Controls Corp.	265
Sims.....	555
Software House	556
Sony Corporation	700
Sound Surveillance Products	480
Southwest Microwave	549
SPECO-EMCO-CSI	780
Sprint/NorthSupply	526
STA International Inc.	382
STAT Resources.....	354
Surcon.....	840
Sure Action.....	834
System Sensor	430
<hr/>	
Talk-A-Phone	481
Tamron Industries, Inc.	838
Tane Alarm Products	254
Tapewire	874
TCL Sales & Distribution	669

Tektone	684
Tele-com Products Inc.	875
Telectron	871
The Hoover Company.....	674
TOA Electronics.....	872
Toshiba Video Systems	362
Trigon Electronics Inc.	384
Tripp-lite	829
TVX Inc.....	456
<hr/>	
Ultrak Inc.	344
Ultralife Batteries Inc.	586
United Communications Center.....	879
United Security Products	471
U.S. Tech.	767
<hr/>	
Versus Technology	105
Vicon Industries Inc.....	641
Videolarm Incorporated	449
Videotronic	644
Vision Quest	718
Visonic Limited	331
Visual Methods Inc.	621
Voice Strategies.....	372
<hr/>	
Water America Corp.	438
Webb Company	184
Westinghouse Security Systems.....	133
Wheelock Inc.	476
Wing Enterprises Inc.	538
Winland Electronics Inc.	532
Winsted	360
<hr/>	
X-10 USA, Inc.....	773
Xetron Corporation	137
<hr/>	
Yusasa-Exide, Inc.....	816
<hr/>	
Zero Stantron Cabinets.....	172



NATIONAL

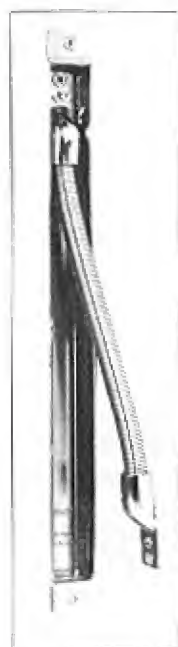
AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

www.laserkey.com

PRODUCT SHOWCASE

American Device Introduces ES-105 Power Transfer Conduit



American Device Manufacturing Co. has introduced a new power transfer conduit which provides a secure, inconspicuous channel to bring power from frame to door.

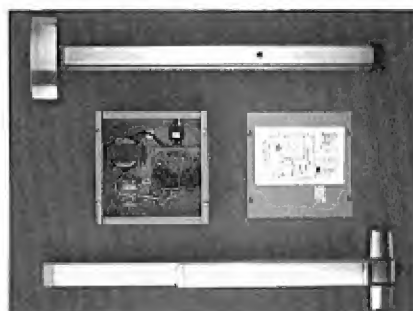
The ES-105 Power Transfer Conduit consists of a steel housing with bright chrome finish and flexible conduit which will accept a wire bundle up to a 5/16" diameter. Simplified preparation can

speed-up frame delivery. Tamper resistant, it is fully concealed when the door is closed.

The ES-105 is suitable for wood, aluminum or steel applications.

For **FREE** Information
Circle 216 on Rapid Reply

ACSI Introduces "Series 1550" UL Listed, Electric Exit Modifications



Architectural Control Systems, Inc. (ACSI), a leading designer and

manufacturer of electrified mortise and cylindrical lock technology, introduces the "ACSI Series 1550" which provides electric latch retraction modifications to a wide range of exit devices.

Series 1550 modifications to Von Duprin, Sargent, Arrow and Yale exit devices are UL Listed for Panic and Fire Exit Hardware and carry a full one year warranty from ACSI.

ACSI modifications allow remote locking and unlocking of vertical rod devices, rim exit devices and mortise exit devices. Series 1550 products have the added feature to interface with automatic door operators.

1550 systems are provided with 24 volt control using continuous duty solenoids which retract the latch bolt for a momentary or maintained period of time. Options include pneumatic control, latch bolt monitoring, security monitoring, and request to exit switching.

The ACSI Series 1550 system includes an ACSI power supply and ACSI electric hinge which eliminates costly and unsightly power transfer devices.

Distributors supply ACSI with the exit device and ACSI supplies the distributors with high quality UL Listed modifications, fast factory turnaround and substantial cost savings.

For **FREE** Information
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Cardkey Systematics® S300



The S300 is the most economical, comprehensive easy-to-expand access

Continued on page 8-ISC



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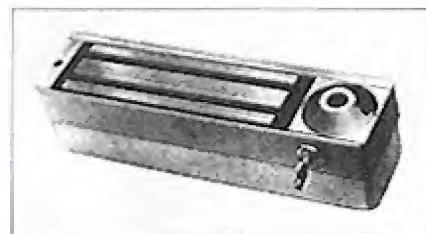
Continued from page 6-ISC

control and security management system available in the one to eight reader range. Offering a host of features and options that include PC, VDT or keypad/LCD programming, 5,000 card capacity and much more, this true state-of-the-art system is designed to provide maximum performance at low cost.

For **FREE** Information
Circle 218 on Rapid Reply

**Delay Egress System From
DynaLock Corp.**

DynaLock Corp. has announced their new #3101 Series delay egress locking system. This self-contained and micro-processor controlled magnetic locking system is easy-to-install and works with existing door hardware. It does not require touch or electrified exit devices, electric hinges, door cords or special power supplies.



When a door is normally closed and latched by the existing mechanical door hardware and magnetically secured by the #3101 lock, an attempt to exit by applying 15 pounds, or less pressure to the door will allow the door to become unlatched and will activate the #3101 delay egress sequence. The audible and red LED will pulsate for 15 seconds, and after the time delay has lapsed the lock will release. The audible will then sound continually and the LED will change to green until the door is shut and the lock is reset by a built-in or remote keyswitch.

For **FREE** Information
Circle 219 on Rapid Reply

**DoorKing Introduces
Programmable Receiver**

DoorKing's new Model 1514PR (Programmable Receiver) offers the security of a fully programmable card reader system with the convenience of a radio control system. The 1514 was designed to work with MegaCode transmitters, which have



over 1,000,000 possible codes available.

Transmitter codes are entered or deleted into the 1514 memory directly on the units keypad. This eliminates the need to physically activate each individual transmitter so that the receiver can "learn" its code, a requirement that is common with other systems of this type. You can also program each transmitter code individually. The 1514 memory will store up to a maximum of 16,000 individual transmitter codes. Another unique feature of the 1514 is that it can be programmed to operate as a stand alone unit, utilizing the units set of dry relay contacts to control a gate or door, or can be programmed to output in Wiegand format and connected to an external Wiegand controller. In addition to being a programmable receiver, the versatility of the 1514 allows four and five digit entry codes to be programmed into its memory. This allows the unit to "double" as a keyless digital entry system.

For **FREE** Information
Circle 220 on Rapid Reply

"Mini Mount" Readers By Elcom



Elcom's new "Mini Mount" readers provide all the reading, communication and access control functions in a small (6.5"L x 1.5"W), all weather unit that is easy to install and use.

"Mini Mount" readers are available to read either bar code or magnetic stripe ID cards. Choose bar code readers because of common usage of bar code ID cards with other automatic identification applications. For added security Elcom's infrared readers can read through "covert" bar codes that are non-reproducible and invisible to the human eye. Or

select magnetic stripe readers for use with "High Energy" magnetic stripe ID cards that are difficult to erase yet can be re-encoded "on the spot" with Elcom's magnetic stripe encoders.

For **FREE** Information
Circle 221 on Rapid Reply

OSI's Omnilock®

OSI Security Devices, expert in the field of wireless, easy-to-install security devices, designs and manufactures Omnilock digital lock systems.

Omnilock digital locks are code



ASP Covers the World of Auto Locks

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operated and directly replace most cylindrical or mortise lock sets. The date, time and user identity is recorded for each entry in comprehensive audit trail.

Omnilock digital locks are available in assorted Grade 1 lock styles and architectural finishes.

Omnilock digital lock systems are at work today protecting computer centers, college dorms, cash rooms, remote warehouses; anywhere that cost effective access control is required.

For **FREE** Information
Circle 222 on Rapid Reply

Securitron Completes Move to New Facility

Securitron Magnalock Corporation has completed its move to a newly constructed international headquarters and manufacturing facility in Sparks, Nevada. The 36,000+ square foot facility, located on a three plus acre site near Reno, Nevada consolidates multiple locations in and around its previous headquarters in California. Securitron Magnalock Corp. is the leading manufacturer of electromagnetic locking systems and associated items for access control and security industries.

For **FREE** Information
Circle 223 on Rapid Reply

STI Announces PIR Mini-System

A professional-grade, mini-system of special interest to locksmiths is being announced by Safety Technology International, Inc. Called the Stopper® Guard, it is designed to be affordable while incorporating features normally found in professional systems.

The first of a new STI line of products for locksmiths and other security professionals, Stopper Guard



detects intruders through its infrared sensor up to a 60' x 60', 110 degree pattern. It sounds either a 110db alarm or door chime. To arm or disarm Stopper Guard, you either enter any preprogrammed security code up to 12 digits on the keypad.

An alarm delay of 10-15 seconds allows you to exit easily and to disarm the keyboard upon your return. The system can be expanded with an AC adapter. A brother model is available with both a super-loud 120db siren and an AC adapter (STI 555).

For **FREE** Information
Circle 224 on Rapid Reply

Tripp Lite's PV 1200FC Inverter

The affordable PV 1200FC provides up to 2400 watts of peak power to start and run large electric motors.

Capable of supplying 1200 watts of



continuous, frequency-controlled AC power from a 12 VDC source, the PV 1200FC easily runs key machines, power tools, computers and other appliances.

Designed for mobile or marine use, the PV 1200FC features stainless-steel terminals and hardware plus a durable powder-coat black cabinet finish for corrosion resistance. Overload and polarity protection and a remote interface are also included.

For **FREE** Information
Circle 225 on Rapid Reply



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MAKING THE LINE UP

"Installing an electric strike to properly align a mortise lockset can pose a somewhat difficult task."

by Michael W. Webb

Installing an electric strike to accommodate a mortise lockset can pose a somewhat difficult task, especially when you are trying to retrofit a pre-existing lockset and strike plate. The mortise lockset, sometimes called an "offset" mortise lockset, is given this name to denote the type of pocket cut into the edge of the door required for installation. The term "offset" refers to the centerline positioning of the lock in reference to the centerline of the ANSI strike plate on the door. The American National Standards Institute (ANSI) describes these basic standards as follows:

ANSI/DHI A115.1 2.1.2 Mortise lock. Mortise Lock is used herein to designate locks having rectangular box-shaped bodies, which are mounted in the edge of the door by mortising.

ANSI/DHI A115.1 4.1 Location of Lock Strikes. The location of the centerline of the strike in the frame shall be 40 5/16" from the bottom of the frame.

ANSI/DHI A115.1 4.2 Location of Lock. The centerline of the lock in the door shall be located in reference to the centerline of the strike,

approximately 3/8" below the centerline of the strike. (See illustration 1.)

Trying to match up an electric strike with this type of lockset becomes even more complicated when you consider that a mortise lockset can be equipped with a latchbolt; a latchbolt and an auxiliary deadlocking lever (sometimes referred to as an "anti-pick" device); a latchbolt and a deadbolt; or a latchbolt, auxiliary deadlocking lever and a deadbolt. This scenario is made even more difficult by the fact that each lock manufacturer has designed their mortise locksets with these three components in slightly different positions and arrangements.

In the past, matching this 3/8" offset lockset with an electric strike presented a real challenge for the installer, since most of the electric strikes produced were designed with the latch position in the center of the unit. At one time there were only two choices available to retrofit this type of lockset. The installer had to either relocate the ANSI 4-7/8" strike cutout in the door jamb (thus dropping the strike centerline to that of the lockset) or use a larger electric strike (often a 9" long unit) to enlarge the 4-

7/8" jamb cutout for the required alignment positioning. Both procedures required extensive cutting and sometimes patch-welding, which required a lot of time and effort for the installer. (See illustration 2.)

In 1976 Hanchett Entry Systems, Inc., made this seemingly difficult task very simple through the development of their 1003 series electric strike. The 1003 series was redesigned in 1992, to enhance its flexibility and provide a single electric strike unit with 22 different options. This electric strike line is able to provide the correct alignment to accommodate virtually every type of mortise lockset on the market which utilizes the ANSI 4-7/8" jamb preparation. Each of the 22 different models are all interchangeable, non-handed and designed to be installed in either metal or wood door jambs. The 1003 series electric strikes are UL listed for Fire Door Accessory (10B, "A" labeled - 3 hour doors) and Burglary Resistance (1034) and comply with the ASTM (E 152) and NFPA (252) specifications. These electric strikes have been tested to withstand a forcing strength of over 2,300 pounds before releasing and perform with a minimum of 500,000 cycles of operation.

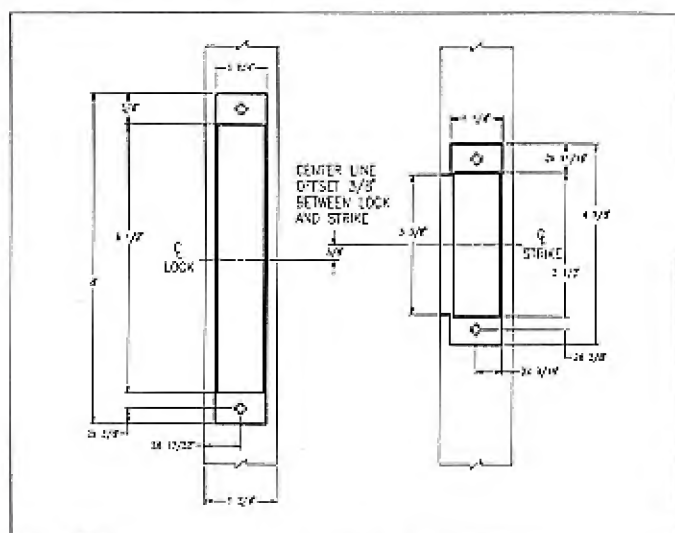


Illustration 1.

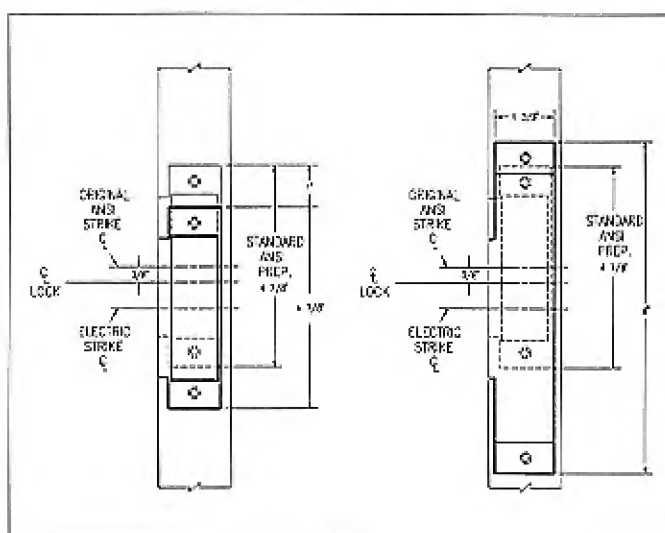


Illustration 2.

In designing the 1003 series electric strikes, H.E.S. utilized various locksmiths and electric strike installers to act as field consultants. Their recommendations helped develop a streamlined electric strike design with 22 different interchangeable face plates and accessories. This allows the strike to

be very easy to inventory and install. Another recommendation was to have plug-in connectors on the strike to simplify the wiring installation. This idea was expanded by modifying a bridge rectifier and a surge suppresser into plug-in modules which simply snap in line between the wire connectors. This reduces the

installation time and eliminates the possibility of the components being installed incorrectly.

There are eight common arrangements for mortise locksets used today. (See illustration 3.) The H.E.S. 1003 series is the only line of electric strikes able to retrofit the







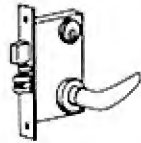

ANSI MORTISE LOCK STYLE	MORTISE LOCK DESCRIPTION	MORTISE LOCK MANUFACTURERS		H.E.S. 1003 SERIES ELECTRIC STRIKE
	Mortise lock with latchbolt and aux. dead locking lever.	Accurate Arrow Baldwin Best Corbin Falcon (1991 & earlier)	Marks OMNIA PDQ Russwin	1003K
	Mortise lock with latchbolt and aux. dead locking lever. Latchbolt is positioned low in relation to the lock.	Sargent Schlage Yale		1003KD
	Mortise lock with latchbolt and aux. dead locking lever. Aux. dead locking lever is positioned below the latchbolt.	Falcon (1992 "M" Series)		1003KM
	Mortise lock with latchbolt and 1" deadbolt.	Accurate Arrow Baldwin Best Corbin Falcon	Marks OMNIA PDQ Russwin	1003N 1003A 1003H
	Mortise lock with latchbolt and 1" deadbolt. Latchbolt is positioned low in relation to the lock.	Sargent Schlage Yale		1003ND 1003AD 1003HD
	Mortise lock with latchbolt, 1" deadbolt and aux. dead locking lever. Aux. dead locking lever is positioned between the latchbolt and deadbolt.	Baldwin PDQ		1003T
	Mortise lock with latchbolt, 1" deadbolt and aux. dead locking lever. Aux. dead locking lever is positioned between the latchbolt and deadbolt. Latchbolt is positioned low in relation to the lock.	Sargent Schlage Yale		1003TD
	Mortise lock with latchbolt, 1" deadbolt and aux. dead locking lever. Aux. dead locking lever is positioned below the latchbolt.	Accurate Arrow Baldwin Best Corbin Falcon	Marks OMNIA PDQ Russwin	1003NM 1003AM 1003HM

Illustration 3.

existing ANSI 4-7/8" jamb cutout with the proper alignment to release all of these various types of locksets.

One of the more commonly used mortise locks is one containing a latchbolt and an auxiliary deadlocking lever. There are three different arrangements on the market with this type of lock. (See illustration 4.) The first illustration shows a traditional style mortise lockset with the auxiliary deadlocking lever positioned above the latchbolt. The 1003K electric strike is designed to accommodate this type of lockset, providing the appropriate location for the latchbolt and deadlocking lever.

The second illustration shows a similar lockset arrangement with the auxiliary deadlocking lever positioned above the latchbolt. The important difference is that the latchbolt is positioned slightly lower on the lock body. This places the latchbolt just below the 3-3/8" lip dimension on the ANSI strike plate, making it incompatible with the standard model 1003K. The model 1003KD electric strike is designed with a lower offset to provide the correct alignment for these particular

locksets. Manufacturers of this style of mortise lockset are Sargent, Schlage and Yale.

The third illustration shows the newly designed Falcon "M" series mortise lockset. In 1992 Falcon redesigned their mortise lockset with the auxiliary deadlocking lever positioned below the latchbolt. This new design caused the latchbolt and auxiliary deadlocking lever to fall into the strike cavity, which made it incompatible with both the model 1003K and 1003KD. The model 1003KM electric strike is designed for this application. This unit is designed with the strike cavity slightly higher than that of the 1003K, allowing it to provide the correct alignment to accommodate the latchbolt while depressing the auxiliary deadlocking lever.

While several manufacturers have strikes that *accept* a mortise lockset with 1" deadbolt, currently, H.E.S. is the only manufacturer that produces a full line of electric strikes designed to *accept and release* a 1" deadbolt.

Before you can select the proper unit to accommodate this type of

lockset, you must first decide how the lockset is going to be used. There are five basic questions to address when determining which type of strike to use.

1. Does the application require the deadbolt to be left in the normally extended position?

The model 1003A is designed to release the entire mortise lockset including the 1" extended deadbolt. The keeper remains in the open position to recapture the bolt when the door is closed and then it returns to the locked position.

2. Does the application require the deadbolt to be extended part of the time and retracted part of the time?

The model 1003N is designed to be used with a mortise lockset where the deadbolt is only extended part of the time. The lockset may be released electrically with the deadbolt extended, but the keeper will return to the locked position and the deadbolt must be manually retracted for the door to close. This unit is often used on the front doors of homes and businesses.

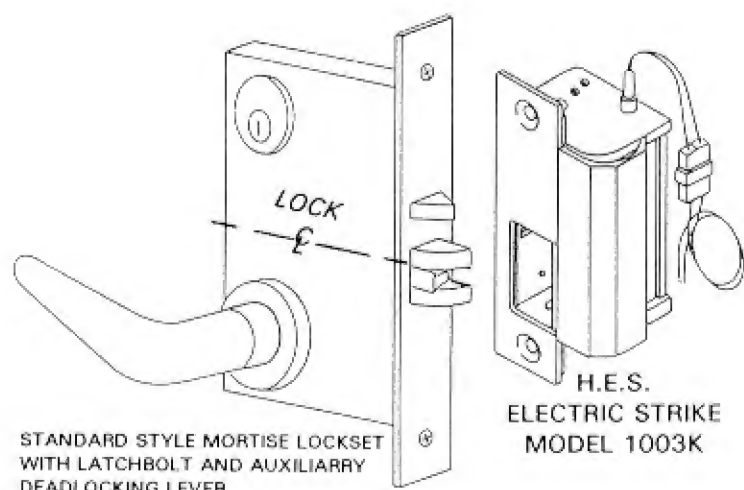


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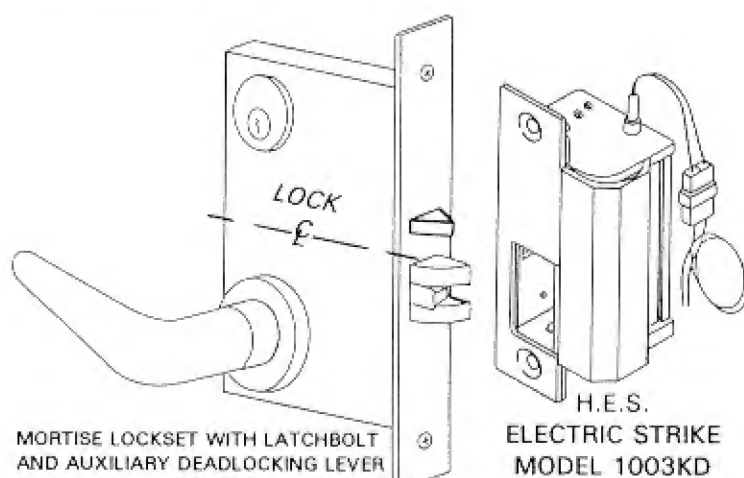
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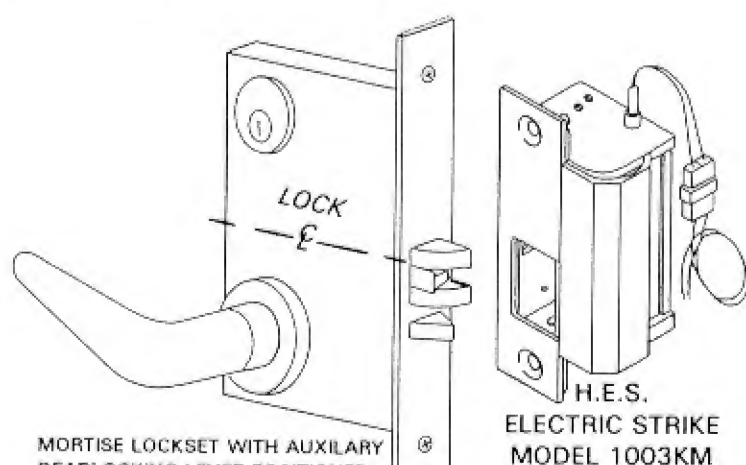


STANDARD STYLE MORTISE LOCKSET WITH LATCHBOLT AND AUXILIARY DEADLOCKING LEVER.



MORTISE LOCKSET WITH LATCHBOLT AND AUXILIARY DEADLOCKING LEVER POSITIONED VERY LOW IN RELATION TO THE LOCK BODY.

MANUFACTURES OF THIS TYPE OF LOCK ARE SARGENT, SCHLAGE AND YALE.



MORTISE LOCKSET WITH AUXILIARY DEADLOCKING LEVER POSITIONED BELOW THE LATCHBOLT.

THIS TYPE OF LOCK IS MANUFACTURED BY FALCON.

Illustration 4.

3. Does the application require the deadbolt to disable the access control system when it is extended? (When the deadbolt is extended the door will not operate electrically.)

The model 1003H is designed to be used with a mortise lockset where only the latchbolt is released electrically. When the deadbolt is manually extended the electric strike will not release the door.

4. Does the lockset contain an auxiliary dead locking lever?

There are two styles of mortise locksets which contain a latchbolt, a deadbolt and an auxiliary deadlocking lever. The traditional arrangement of these components is with the auxiliary deadlocking lever positioned between the latchbolt and deadbolt. The model 1003T is designed to provide the proper alignment to activate the dead locking lever in these locks. In recent years, however, many lock manufacturers have repositioned the auxiliary deadlocking lever below the latchbolt. The 1003M is designed for this application. These two models can be combined with the "A," "N" and "H" function as mentioned above.

5. Does the lock have a "one motion egress" function? (Depression of the inside lever handle on the lock retracts both the latchbolt and the deadbolt simultaneously.)

The "one motion egress" function on mortise locksets is being required more frequently, due to increased handicapped and fire safety regulations. It is important to remember when specifying an H.E.S. electric strike to release this type of lock, that the deadbolt can be retracted by turning the inside handle. Therefore, only the models 1003N, 1003H, 1003T and 1003M can be used. The model 1003A requires the deadbolt to be extended at all times.

Installing an electric strike to retrofit a mortise lockset can pose a somewhat difficult task, unless you fully understand the relationship between the two products. With the development of the H.E.S. 1003 series electric strikes, the installation process has become much easier due to the unique design and versatility of the product.

The author is V.P. of marketing for Hanchett Entry Systems.



Continued from page 34

estimated that the EEOC will receive an additional 12,000 cases per year.

The benefits of learning how to combine ADA with security, and the good will that will be developed are just the beginning. Compliance is mandatory! Consider the benefits to your business of being able to provide ADA solutions to your customers as well as meeting their need for security.

In order for the security professional to market and sell ADA solutions, however, he must ensure that their customer is educated about the ADA. The first step in this processes is to

know what conditions call for ADA solutions. Before educating your customer on ADA compliance, a locksmith must first understand what is meant by the law's two most significant phrases, "readily achievable" and "reasonable accommodation." By taking the time to research these concepts, a locksmith can help a corporation realize low-cost and no-cost ways in which ADA compliance may be achieved.

Many major corporations, such as Nordstrom Inc., Anheuser-Busch Company, Inc., United Airlines, and K-

Mart Corporation are not waiting to be forced into compliance and are currently researching these issues. These corporations are also featuring people with disabilities in advertisements and are receiving the benefits of positive media attention. The lodging industry is emerging as one of the leaders in ADA compliance efforts.

For example, Hyatt Hotels Corporation announced immediate and long-term changes to make its hotels barrier-free. Hyatt operates approximately 108 properties in the United States. The company is retrofitting its door hardware with lever-handle locks and has installed telecommunications devices for the deaf, vibrating alarm clocks, and strobe lights for smoke alarms, etc. These are services and products that a security professional can offer.

The ADA does not provide any grandfather clauses, certain locking hardware, and all signaling devices used in fire and life safety systems are subject to compliance. The Equal Remedies Act has been approved by the Senate Labor and Human Resources Committee. This act uncaps the current limits of monetary damages (\$50,000 to \$300,000) for punitive and compensatory damages relating to job discrimination. A companion bill is pending in the House Judiciary and Education and Labor Committees. Clearly, companies that do not get out in front of ADA compliance will be targeted for enforcement. Such incidents will be costly in terms of both dollars and image. Helping your customer take a preventive approach is the only logical course.

There will be costs associated with complying with the ADA Law. Acknowledging that funds will be allocated to meet these obligations, it is critical for management to understand the importance of having the various levels of management involved in the ADA compliance plan. It is equally critical to the corporation or organization that all levels of management learn the particulars about ADA in order to preclude unnecessary corporate spending, while maximizing the efforts and benefits of any corporate ADA compliance efforts. The security professional may be able to save their customers thousands of dollars in costs while complying with ADA.

When reviewing an organizations operations and facility to meet ADA obligations, it is important to recognize that while ADA may require change, if

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PRODUCTS MANUFACTURED	MISC.
CYLINDRICAL LEVER LOCKS	
MORTISE LEVER LOCKS	
DOOR CLOSERS	
POWER DOOR ASSIST	
EXIT DEVICES	
TECH ADVICE TO INSTALLERS	
OTHER (SEE LEGEND BELOW)	

This guide contains a great deal of information about companies which manufacture products to help you and your clients comply with the Americans With Disabilities Act (ADA).

PRODUCTS MANUFACTURED	MISC.
CYLINDRICAL LEVER LOCKS	
MORTISE LEVER LOCKS	
DOOR CLOSERS	
POWER DOOR ASSIST	
EXIT DEVICES	
TECH ADVICE TO INSTALLERS	
OTHER (SEE LEGEND BELOW)	

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Door Aid
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 Phone 800-527-5672

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Dor-O-Matic
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 Fax 800-531-3108

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 Fax 203-284-1480

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Lindusries, Inc.
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M.A.G. Engineering & Manufacturing
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 Fax 714-892-6845

Marks U.S.A.
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 Fax 516-225-6136

Master Lock Co.
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Medeco Security Locks, Inc.
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 Fax 703-380-5010

Newman Tonks
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 Fax 502-543-3089

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PDQ Industries, Inc.
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ADA PRODUCT GALLERY

PRODUCTS MANUFACTURED					MISC.
CYLINDRICAL LEVER LOCKS	MORTISE LEVER LOCKS	DOOR CLOSERS	POWER DOOR ASSIST'S	EXIT DEVICES	OTHER (SEE LEGEND BELOW) TECH ADVICE TO INSTALLERS

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Simplex Access Controls
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This guide contains a great deal of information about companies which manufacture products to help you and your clients comply with the Americans With Disabilities Act (ADA).

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10-Flush Door Pulls



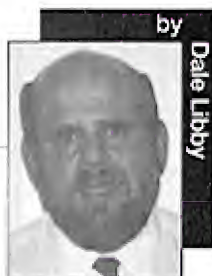
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by
Dale Libby

A MAJOR ATTACK

"Some locks can't be picked. Some safes can't be manipulated. I knew drilling would be our last resort."

When working on a particular safe, both you and members of your team should decide and discuss the methods and modes of attack, and in which order they should be taken. I received a lot of good feedback about the "Team Safecracking" article I did a few months ago. This latest safe opening was done with the aid of a new Team member, viz. Tom Mazzone. He invented the AlphaCracker key set to make keys for the new AlphaTech steering column lock on some new GM cars (The Five Minute Cavalier Key, The National Locksmith, September 1993).

Tom is a very good safeman and a good safe lock manipulator. He was called on to open a Major TL30 single door unit. (See photograph 1.) The owner of the safe was adamant about NOT having the door drilled. I still do not know why a customer knows more about opening safes than a safe technician does. Oh well. Tom tried for several hours unsuccessfully to get any consistent reading by manipulation, so he called on me to help. (See photograph 2.)

Having just had two successful manipulations with my new tool, the "WASP", I was ready to open this safe quickly and easily. It did not happen. (See photograph 3.) I attached the wasp and proceeded to teach Tom how to use the tool. He liked it and we quickly got a third number reading of 70, which turned out to be the last number of the combination. (See photograph 4.) We could not pick up either of the first two wheels with any consistent readings. There had to be trouble within the combination safe lock.

Not all locks can be picked. Not all safes can be dialed open by manipulation, for several reasons. Drilling on this unit could have been accomplished, but having had to open several of these diabolical safes in the past, I knew that drilling would be the last resort if we could talk the customer into it.

Parenthetically, the position of the safe against the left wall of the storeroom played a part in NOT drilling the unit open. This particular safe had been



1. The Major TL30 safe with a LaGard dial and lock.



2. Making the first attempt at manipulation using the Lockmasters Yellow line indicator.



3. Making the second attempt using the WASP weighted device.



4. Tom Mazzone using the WASP to determine the third number of the combination.

drilled and side punched in the past. Because we did not attempt to move the safe into the middle of the floor, we did not see the shoddy repair on the side of the safe until we got the door open and saw the hole in the door. If we had known that the safe had been side punched before, the opening would have taken about 15 minutes, with no drilling except for the removal of the tapered pin driven into the edge of the door.

I thought something was amiss, however, for these Major safes usually come equipped with a S&G 6730 series combination Group II lock, and not a LaGard unit. Certain modifications have to be made to the back cover and I have a couple of S&G covers already plated and riveted for the relocker mechanisms. More on this later when we get the safe door open.

We had to get this unit open. There was no immediate rush. As luck would have it, that Saturday there was a GCLA (Greater Chicago Locksmiths Association) Trade Show. Tom, being the perfectionist that sometimes dominate in certain locksmith and safeman circles, decided to purchase an automatic safe dialer, the TTL-1000 from the Lockmasters reps at the convention. This Major safe would be the real test of that unit. I will give you a light overview of the use of the dialer.

First of all, it works. It is not hard to use at all, and comes with a video tape of how to set up and use the unit. The unit comes in its own briefcase with the digital display pad, motor, and all accessories. Here is a brief description of the sequence and the methods used.

(See photograph 5.)

1. In short the dialer opens a safe by dialing ALL the possible combinations. If left to dial all possible combinations, opening a safe takes hours. To lessen the time for the dialer to work, we used a range of numbers we got when we manipulated for the third wheel. Since we got a good reading consistently around 70, we set the last number range between 60 to 80. This considerably shortened the time it took for the dialer to work.

2. The base plate that fits over the dial ring was then attached with clamp magnets to the face of the door. (See photograph 6.) Then the self-centering dial clamp was attached to the dial. (See photograph 7.) This is the new and improved version of this tool. Very nice.

3. Now the stepper motor was attached to the base plate and the dial clamp and we were ready to use the computer interface. (See photograph 8.)

4. The right drop in point was set in the computer. At this time we determined the 'speed' of the dialer to use and the increment of numbers to dial (1, 1.5, 2, etc.) We used 1.5 number increments at the second fastest speed. (See photograph 9.)

5. The computer was turned on and we waited. (See photograph 10.) Actually other locksmith work was done. After 5 hours when we were done, the safe had not given in to the dialer. Since the room where the safe and dialer could be secured, we left it still operating.

Later that evening, about 11 hours after the dialer was started, the owner of the restaurant called and told Tom that it had turned off. The next day, Tom went and retrieved the combination. The safe was in the last turn to right to open position and Tom then opened the safe. The combination that was on the dialer display did not actually work the safe. (See photograph 11.) In theory it could have been off 1.5 numbers either up or down, but because of internal lock problems, that we'll cover in a minute, it was not possible to determine the true combination. For now, however, who cares, the safe was open. Now to diagnose the problems. (See photograph 12.)

Above the detent mechanism on the door was the hole that was drilled to punch the safe open at a previous time. (See photograph 13.) Major used these door configurations for the "flapper" relocker in both right hand and left hand configurations. These relocking devices are set off when the lock, handle cam, or handle itself is punched or moved inward. The relocking device is a double



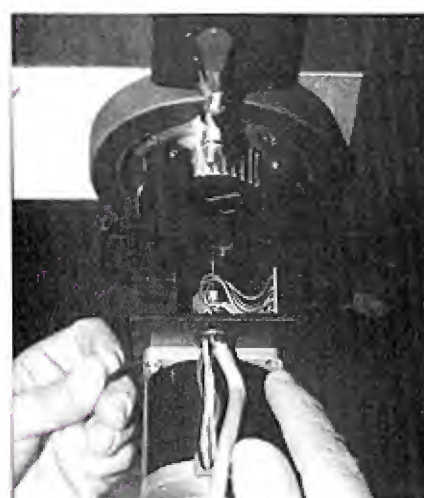
5. Lockmasters' ITL-1000 safe dialer.



6. Using magnetic clamps the baseplate is attached to the safe. Adapters allow this to be used on many safes.



7. Attaching the self-centering dial ring clamp, below the stepper motor base.



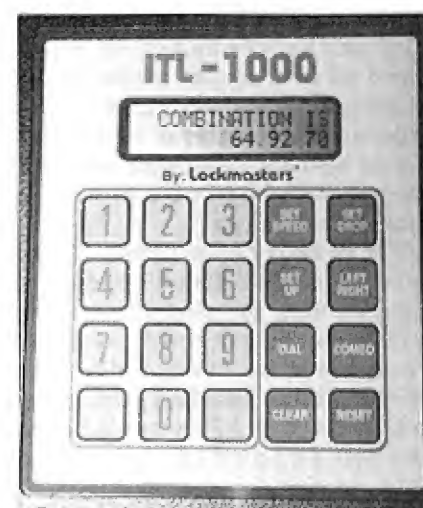
8. Attaching the stepper motor to the base and dial clamp.



9. Setting the Drop position or left contact point. Number eight on this lock.



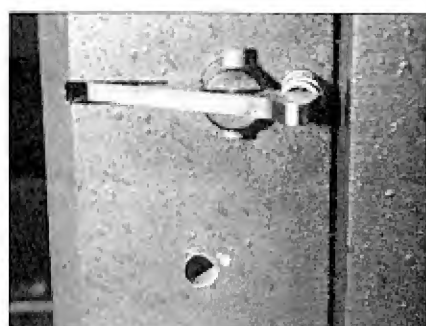
10. The combination being dialed is displayed on the digital screen while the unit is working.



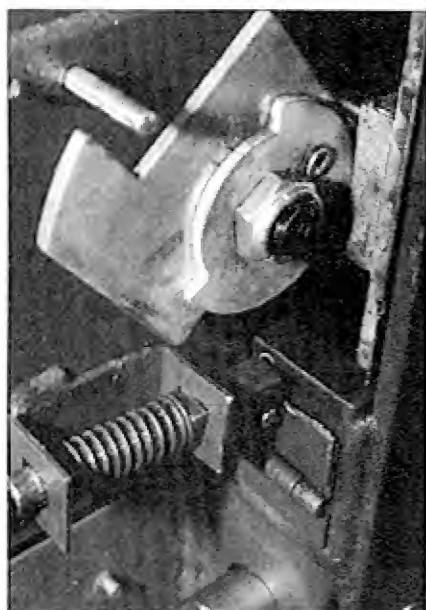
11. Once open, the ITL-1000 retains the working combination on. In this case, however, internal lock damage did not allow this combination to work again.



12. With the safe open, inspection and repairs begin.



13. This unrepaired hole below the door bolt detent was made to punch the 'flapper' relocker, and was visible once the door was opened.



14. The relocking bolt bar and spring. Notice that the ringed 'flapper' relocker is missing. Apparently removed during the previous entry.

spring loaded bar. First, it is fired to lock the flapper into the vertical bolt bar which withdraws the bolts. Then a spring under the relocker forces it up into a cut out or notch which double locks this bar into position. One cannot just push the bar back into position, it must be punched and driven out of the way to free the steel hinged relocker. Punching can, and in this case did, destroy the secondary relocking characteristics. (See photograph 14.)

Here is a possible scenario of what might have happened. This chest was previously attacked and the dial spindle punched, either by a zealous safeman or robber. This set off the relocking device. The lock itself was neutralized by a through-the-spindle tool which unhooked the relocker and withdrew the bolt. The side of the safe was then drilled to punch the flapper/relocker and the safe opened. There was no hardplate drilled in the safe.

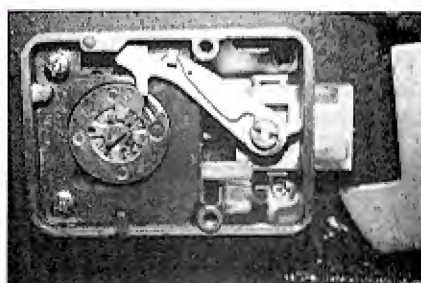
The subsequent repair on this safe left much to be desired and actually caused our manipulation attempt to fail (and even with the right combination, it would have been tough and go). A LaGuard combination lock was used with an old spline key. This left the dial cam move freely about 2 numbers either side

of the correct number at random. The spline key was inserted backwards to my way of thinking. (See photograph 15.)

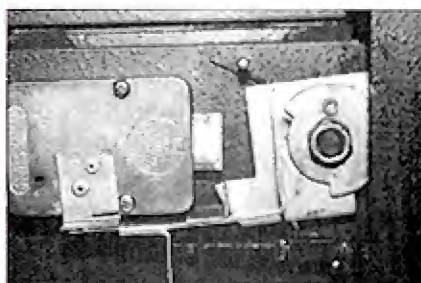
I did not like how the punch plate was attached to the back of the LaGuard lock. There was no functional purpose for it. The flapper relocker was destroyed and not even present in the safe. Thus, the lower relocker bolt bar did not do anything at all, either fired or set. Hence there was no need for this part of the mechanism to be installed at all. (See photograph 16.)

Further, if the edge of the handle cam were punched, or even the handle itself, it would set off the relocker in the safe combination lock. This would make no difference, however, for the attack on the handle and the cam would bypass the combination bolt anyway, so this punch plate was really added for no reason whatever by the repair technician.

The safe was fitted with a new S&G combination lock and the previous repairs were re-repaired. In the bottom of the safe there is a door with a LaGuard 2200 series combination lock that the customer does not want drilled. I have purchased a pick for this bottom lock and will attempt to open it without drilling. The customer is always right, right???? Open and Prosper!!!!



15. The LaGuard lock with anti-fish plate. File marks on the face of the spline key indicate that it was probably not the correct one for this lock and had been filed to fit. Unfortunately, this resulted in a spline key that was so loose it thwarted any possibility of manipulation. In fact, even the correct combination did not consistently open this lock.



16. The LaGuard lock with the punch plate installed on the back/bottom of the lock. It is ineffective without the 'flapper' relocker.



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BUSINESS BRIEFS

News from the Locksmithing Industry

Industry Interview...

Insights into the world of the locksmith for Stan Gabay weren't gained by being involved with locksmiths. In fact, Stan's understanding and perspective of the hardware industry comes from years of involvement with the alarm industry. And if experience is said to be a good teacher, speaking with Stan reveals a lot as to how the locksmith should be preparing himself for the future.

Stan has been involved in the security industry for the last 28 years. Starting with Ademco (a large manufacturer and distributor of alarms and alarm products) in 1965, he worked as the Director of International Marketing, setting up a system for overseas distribution of Ademco products.

After 13 years with Ademco, Stan joined Alarm Supply Co. where he spent the next 12 years, serving as Vice President of Marketing.

In 1990 Alarm Supply Co. was purchased by another company and moved. Deciding not to make the move, Stan joined Ace Lock & Security Supply as the Director of Sales and Marketing. His main focus here is to expand and grow the company.

With a perspective on security rooted in the alarm industry, Stan is surprisingly pro-locksmith. When asked about the relationship between the locksmith and alarm installer Stan responds:

"There are two areas of concern," he said, "first is the encroachment of the alarm industry into access control. This is the locksmith's field of growth."

"It's the locksmith not the alarm installer who is familiar with the locks and hardware associated with access control.

"Take the Omnilock for example. Here is a small single door access system that is basically a piece of hardware and should be installed by the locksmith."

"The battle for the locksmith is that access control seems to be a small step for the alarm installer who is already installing electronic components. The locksmith on the other hand, while he's well versed at hardware use and installation, needs to take a little bigger step by being educated in electronics.



Stan Gabay

The second area of concern is the current level of alarm legislation activity.

"The alarm industry is getting legislation that is very dangerous to the locksmith" says Stan. "If the locksmith doesn't act immediately, access control is going to be lost."

"In fact, a locksmith association in our area called and let me know about some pending locksmith legislation which would prohibit locksmiths from doing low voltage electrical installations, with no such restrictions on the alarm installer. As a supplier I told him we would support there cause in any way we could." Stan said.

"It's important that locksmith distributors and manufacturers get involved with helping the locksmith," he added, "we (distributors and manufacturers) have a lot at stake as well."

Stan was asked why there was such a difference in growth between the locksmith and the alarm industry.

"The alarm industry," said Stan, "has some large and very well organized and professional organizations backing its needs. The locksmith industry, on the other hand, is probably where the alarm industry was 15 years ago. They (the locksmith) are just beginning to recognize the need to professionalize locksmithing."

Some of the changes Stan sees as helping the locksmith is presenting a better image to the customer.

"I have a copy machine technician," says Stan, "that comes into my office wearing a coat and tie and carrying a brief case that has his vacuum and tools in. He spends a short time vacuuming out and wiping off the machine and I give him \$200.

"The locksmiths in our area only make a fraction of that. That's not right," Stan says.

"The locksmith needs to develop a mindset to upgrade the way he deals with his customer. He needs to keep up with buying good equipment and presenting himself to his customer as a professional," he said.

The locksmith must grow into a Security Professional. He must expand on his job of cutting keys and installing deadbolts.



Industry News...

KABA High Security Locks, with new management and an aggressive sales network, is looking to 1994 with renewed confidence in both its products and the security market in general. The Connecticut firm is headed toward significant sales goals in '94, especially in its PEAKS™ and KABA Gemini lines of high security key control systems...

Van G. Carlisle, president of **Fire King International**, has been selected from among the country's most successful, innovative owners of small business to help the U.S. Chamber of Commerce and The White House gain support for the North American Free Trade Agreement (NAFTA). Carlisle



(From left to right) Van Carlisle, Pres.; Lloyd Jones, VP Sales; Roger Burris, Production Technician.

participated on a panel of owners of small business Nov. 1 as part of a video town meeting supporting NAFTA and the positive impact it would have on the U.S. economy. The town meeting, led by President Bill Clinton, was beamed via satellite to nearly 500 markets across the country. As part of the agenda, Carlisle shared NAFTA-related success stories for Fire King that would come to fruition with the passage of the agreement...

The Central Pennsylvania Locksmith Association (CPLA) held their elections on November 7, 1993. The following were elected or re-elected for the 1994-1995 term, George A. Sharpley, CML, President, 3rd term, Franklin Busch, CRL, Vice President, 2nd term, Robert Mohl, CRL, Secretary, James Shermeyer, CPL, Treasurer, 2nd term, Robert Wagner, CML, Sgt. At Arms, 4th term. The directors elected to four year terms were David Willson, 2nd term, and Myron Bird, CML, who join Charles Folcomer, CRL, and Charles Berkheimer to complete the board of directors...

MARKS U.S.A. is pleased to announce the appointment of Rulon Agencies who will be representing their product line in Vancouver, British Colombia. Tom Rulon's expertise in Contract Hardware as well as his knowledge in the hi-security market makes his addition truly beneficial to MARKS...

The Maryland Locksmith Association has elected it's 1994 board. The newly elected officers are: President Bob De Weese, CPL, Bear Lock & Security Service, Inc.; Vice President, Shelly Finkelstein, CRL, Abacus Lock Co.; Secretary, Jeff Cole, Help Locksmith Service; Treasurer, Richard Shellhorn, CPL, Emergency Locksmith Service; Sgt. At Arms, Dennis Emmel, Emmel's Locksmith Service; Past President, Mike Stang, CML, Parkville Lock & Key...

More than 3,000 retailers participated in special crime prevention/home security promotions in October, which is National Crime Prevention Month. **Master Lock Company** assisted retailers in hosting

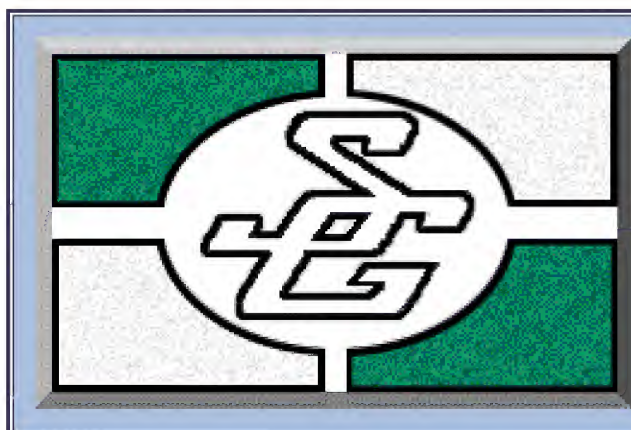


A McGuff the Crime Dog® costume, and crime prevention kits were donated to the Metcalfe park Service Office of the Milwaukee Police Department by Master Lock.

crime prevention demonstrations; providing materials and developing special displays concerning home security; working with local crime prevention officials, and sponsoring in-store visits by McGuff the Crime Dog®...

John Blodgett, **Detex** Vice President and General Manager, recently announced the acquisition of F systems, a security equipment and systems manufacturer located in Bastrop, Texas...

Don-Jo Mfg. has recently announced the completion of a 7,500 square foot addition to its existing sterling, MA facility. The new space will be completely devoted to increasing manufacturing capacity to keep up with the increased demand for their products. "The addition of the new space will enable us to keep producing the quality, American made goods in the timely fashion our customers have come to expect," stated president Bob Roy... 



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LIGHTER SIDE

Getting A Charge Out of Locksmithing

"What was the call you took around midnight, last night?" I asked Don between yawns at breakfast one morning.

"You don't want to know," he replied.

Awakened from a sound sleep, I had answered the phone. I vaguely remembered conversing with a woman who spoke in a calm, businesslike manner as she inquired about our services.

"We need a locksmith to make a set of keys for a commercial rig—a Peterbilt," she had informed me. "We have to get it on the road before morning. Does this present any problems for you?"

"Not at all," I replied. "I'll let you speak to the locksmith. He'll want to get some information from you before he comes." Poking Don awake, I whispered "Locksmith call," and handed him the phone while I reached for the pad and pencil on my bedside table to make notes for him.

"Are the keys locked inside the cab?" I heard him mumble into the telephone. "Then you don't have keys at all? Are you the owner of the vehicle? Where are you located?"

As she answered his questions, he repeated the information aloud, and I wrote it down.

"And your name?"

More writing.

When the conversation had ended, Don—wide awake by now—handed me the telephone receiver. I gave him the page of notes I had taken, and he crawled out of bed to dress and be on his helpful way.

It seemed a run-of-the-mill event, except for the hour of the call and Don's rather unusual comment about it at breakfast.

"What do you mean, I don't want to know?"

"The whole thing was like a Mickey



by
Sara Probasco

Spillane tale."

"Yes? Tell me more." Always a sucker for a good yarn, I eagerly awaited the details. This is the story he told:

She was a real looker, the lady who called for my help. When I drove up to the all-night convenience store, she was leaning against the telephone booth outside, smoking one of those long, oval cigarettes. The hot night air was still, and the smoke curled lazily above her head.

"Are you the locksmith?" she asked in a sultry voice as I walked toward her.

"At your service," I replied, not realizing what I was letting myself in for.

"You'll have to follow me to the site," she said. "It's a couple of miles out in the country."

She led the way down a twisting blacktopped road until we came to a place where a vehicle was parked beside the road. Inside it, were two men. Just ahead, by the light of the full moon I could see a farm house with an eighteen-wheeler rig parked beside it. Pulling off the road to the side of the parked vehicle, the woman signaled for me to do the same. One of the men stepped out and soon the three of us were standing together in a sort of huddle.

"Did you call the police?" the man asked the woman.

She nodded. "They should be here at any minute."

"There's no sign of anybody awake, in there," he said, "but you never can tell. It's best to be careful. We don't want anybody getting hurt."

I gulped before I spoke. "I'm not sure I understand what's going on, here. You want me to make a set of keys for that vehicle, right?" I pointed toward the farm house.

"That's right."

"Then, let's go do it."

"We need to wait until the police arrive."

"I thought the rig belonged to you."

"It does," the man replied.

"Then why are we being so secretive, and why the police?"

"The man in that farmhouse works

for me, hauling machine parts from an assembly plant in Mexico to our factory in California," the man explained. "The rig he drives is ours." He indicated himself and the woman. "The problem is, this guy hits the bottle pretty heavily, sometimes, and he sort of goes nuts; he has a lot of personal and financial problems."

"I'll say," the woman chimed in. "We recently found out, he's maintaining two households. It seems he has a wife and children who live here, and another family at the other end of the line."

"You mean, he's a bigamist?" I asked.

"Well, we don't if he's actually married to either one of the women, but he definitely has two families who probably don't know about each other," she replied. "He's always into us for an advance on his wages."

"The biggest problem is, we never know where he is any more. Sometimes he'll disappear for days, missing delivery deadlines. When we finally told him he was fired, he wouldn't turn over our rig to us, so we've come to get it," the man explained. "I brought another driver, but I had Mary call the police, just in case this guy gives us trouble."

"Good thinking," I said, wondering how I had gotten myself into this mess in the first place. I began thinking about taking out an unlisted number in next year's telephone directory.

Suddenly, the area was alive with flashing blue lights as three, four, five police cars wheeled up. At least their sirens weren't on. Before the dust settled, one of the officers emerged and conversed in hushed tones with the owners of the rig. Then he returned to his vehicle and motioned for the others to follow him. We fell in line.

Lights still flashing, they circled the rig and quietly waited, while I set to work making a set of keys for it.

It wasn't until the owner's new driver cranked up the rig to take it off that the former employee burst from the house in a rage, dressed only in a pair of ragged jeans. Several of the policemen surrounded him and managed to calm

Continued on page 95

TECHNITIPS

Helpful hints from fellow locksmiths

Send in your tips
and win.

HOW TO ENTER

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is submit a tip,
covering any aspect
of locksmithing to

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Certainly, you have
a favorite way of doing things that
you'd like to share with other
locksmiths. Why not write it down and
submit it to: *Jake Jakubowski*,
*Technitips' Editor, The National
Locksmith*, 1533 Burgundy Parkway,
Streamwood, IL 60107.

Tips submitted to other industry
publications will not be eligible! So get
busy and send in your tips today. You
may win cash merchandise, or even
one of many key machines or code
book sets. At the end of the year, we
choose the winners of the listed prizes.
Last year dozens of people walked off
with money and prizes. Wouldn't you
like to be one of the prize winners for
1993? Enter today! It's a lot easier
than you think.

EVERY TIP WINS "LOCKSMITH BUCKS!"

Yes, every tip published wins a prize.
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exclusively. Each and every tip
published in *Technitips* wins you \$25
in Locksmith Bucks! Use this
spendable cash toward the purchase
of any books or merchandise from
The National Locksmith. You will
also receive a Bonded Locksmith
bumper sticker and decal. Plus you
will be eligible for really big prizes.

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of
the month, you will win \$50 in cash as
well as \$35 in Locksmith Bucks! Plus
you will receive a Bonded Locksmith
bumper sticker, decal and a
Locksmith cap. And, you may win one
of the annual prizes.



by
Jake Jakubowski

These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Fort Lock Backer Board Display Panel

Submit your tip and win!

*You'll probably notice that there's a
new picture at the top of this page.
No, Bob Sieveking did not metamorphose
into a handsome prince ... that's me, Jake
Jakubowski! O.K.! So you still don't have
a picture of a handsome prince. What
you do have is a new Technitips editor.
Again, me. What happened to Bob?*

*In addition to editing this column,
Bob is a full-time, day-to-day, locksmith
just like most of us. He's authored several
books, runs a farm, operates a machine
shop, free-lances and writes for the The
National Locksmith.*

*Bob brought a lot of expertise to this
column. He is a graduate Electrical
Engineer, an inventor (The Squeeze Play
Door Mortiser) and has been a locksmith
for seventeen years. The good part is, that
expertise is still available to this column.
Why? Bob and I are friends and I'll
probably bug him a lot to share some of
his knowledge with us.*

*A lot of us, including me, are going to
miss Bob's direction with Technitips, but
the point is: this is not Bob's column, or
my column, or even the The National
Locksmith's column. Technitips was, is,
and should always be, your column. After
all, it's locksmiths like you that send in
the tips, suggestions and ideas. Without
your participation, Technitips doesn't
work.*

*So, keep those tips coming. And, if we
print your tip, you can make out like a
bandit!*

To enter the Technitips contest each

*month all you need to do is send me a
letter telling me about your favorite way
of doing something or how you found a
better way of opening a door, repairing a
lock, etc. Mail your entries to: Jake
Jakubowski, Technitips' Editor, The
National Locksmith, 1533 Burgundy
Parkway, Streamwood, IL 60107.*

*You can submit as many tips as you
like, but we won't consider any
submissions that have been published by
another magazine. So get busy, and send
me your tips! You can win merchandise,
cash and more! Every tip published wins
a prize!*

*Every tip wins LOCKSMITH
BUCKS! When your tip is published you
get \$25.00 in Locksmith Bucks that you
can use to purchase any of the books or
merchandise offered by The National
Locksmith. In addition, you will receive a
Bonded Locksmith bumper sticker and
decal. Plus, you'll automatically be
eligible for one of those great year-end
prizes!*

*If your tip is chosen as the best tip of
the month, you will win \$50.00 in cash
and \$35.00 in Locksmith Bucks! Plus,
you'll receive a Bonded Locksmith
bumper sticker, decal and a Locksmith
cap. And, your tip is entered in the
annual drawing. Man! What can you
lose? Just remember: your tips have to be
submitted exclusively to The National
Locksmith.*

*O.K., come on and help me make
1994 the best Technitip year ever!*

FEBRUARY'S BEST TIP

I was called to work on the ignition of a 1993 Audi. The face and the outside front collar of this ignition are made of hardened steel and the collar is attached to the ignition by a concealed steel spring retainer. In order to service the ignition cylinder, you first need to remove the hardened collar, since the cylinder will not come apart until the collar is off.

When this unit is assembled at the factory, the circular retainer is inserted in the collar, and pressed

over the ignition assembly. Since the spring exerts a strong, outward pressure on the collar, it holds the collar very snugly to the cylinder.

If you were to try to pry the collar off the ignition, the cylinder (which is made of a soft pot metal) would break. Here's the best method that I have found for removing the hardened collar without damaging the plug or the ignition cylinder.

Illustration one shows the ignition cylinder, hardened face cap and the hardened collar. The housing of the

ignition has a groove all the way around it that is 1/8" from the front edge of the cylinder (not counting the hardened face cap), and is 1/16" deep. This groove is what traps the retainer and holds the collar on the ignition.

Notice the dotted line that runs down the side of the collar in the

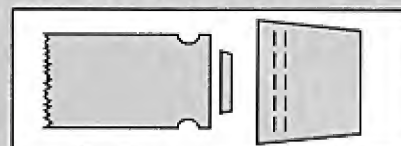


Illustration 1

illustration. Using a Dremel Tool with a cut-off wheel, open two slots in the edge of the hardened collar, 180 degrees from each other. That is, one cut on one side of the collar and the other cut on the opposite side. Be sure to stay at the rear of the collar when making these cuts.

Looking through either cut, you should be able to see the retainer ring that holds the collar to the ignition. Turn the collar around the ignition until you see the gap (about 3/8") at the ends of the retainer ring. Now, turn the collar another 90 degrees which aligns both of the slots that you cut with the sides of the retainer.

Leaving the collar in this position, use two pieces of flat spring steel that are thinner than the slots (both pieces should be about 1/4" wide and 1" long). Place one piece of steel in each slot, and using a 2" C-clamp, or large pliers, squeeze the steel pieces inward.

That action compresses the retainer out of the collar, and while continuing to hold pressure against the retainer, pull the collar off of the cylinder.

You'll find that the rest of the disassembly, and service, will be pretty much as previous years. Once you have completed the required work on the ignition, reassemble and after inserting the retainer into the collar, simply "snap" the collar back on the cylinder. There is a rubber boot around the face of the collar that will hide any scuff marks and the slots that you cut.

Jerry R. Robinson
Illinois

Editor's Note: I believe you'll find that this tip will also work on certain Volkswagen models that the hardened collar and face plate on their ignition.

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ALL-LOCK VATS DECODER WINNER:

Here's a tip on how to remove the ignition from an Eagle Premier in a matter of minutes without destroying the lock.

First, pry off the plastic trim ring from the face of the lock. This ring snaps off and on rather easily. With the ring removed, you'll be able to see two indentations and a small hole (see *illustration 2*) on the outer edge of the lock. Using a 3/32" drill bit, slide the bit into the hole until it stops. The bit is now against the lock retainer and directly in line with the retainer spring.

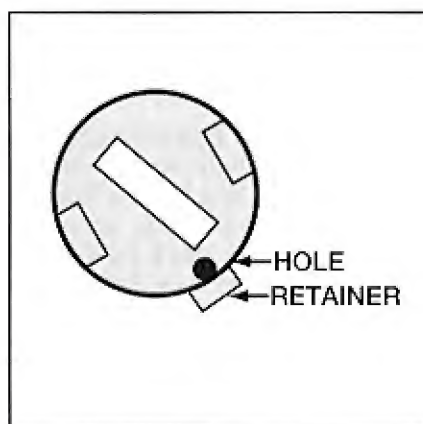


Illustration 2

Drill inward 1/4". This will drill out the spring, leaving the retainer intact. Tilt the steering wheel up, and tap the face of the lock to dislodge the retainer. By tilting the wheel up, the retainer will fall out between the trim to the floor of the vehicle. If the retainer does not fall out, there is room between the face of the lock and the trim to pry it down with a piece of wire.

Pull the lock out and cut a key by code, or perform whatever other service is necessary. Repair the retainer with a piece of flat spring steel, making sure that it goes all the way through the retainer, but is not so long that it interferes with the turning of the plug.

I've used this method on five different Premiers. So far, it's worked every time.

Dana M. Fasick
Pennsylvania

SILCA KEY BLANK WINNER

Now that the local AAA has been giving away plastic keys to their members, I have encountered a number of broken plastic keys in various auto locks.

Here's an easy way I found to extract a broken plastic key:

Heat up a spiral key extractor until it's red hot. Insert it in the keyway and let it melt its way through the center of the key and down its length. Let it cool a couple of seconds.

Now, you've got a grip on the plastic key that just won't let go, and you can easily pull the key out. Occasionally, you may have to use a pick to lift a wafer or pin that gets in the way.

Steve Briarton,
California

HPC PISTOL PICK WINNER

When I rekey a Medeco key-in-knob cylinder, rather than pry the spring cover off, dump the pins and springs, recombine the cylinder, and



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then stake a new spring cover, I use the following method, which I think is quicker and easier.

First, remove the tail-piece and cylinder retaining ring. Using a universal follower, insert the key in the cylinder and turn the plug slightly clockwise. Remove the plug, but make sure to keep your index finger on the side-bar. Once the plug is out of the cylinder, drop the driver pins and springs by removing the follower. Drop the bottom pins from the plug. Set the plug aside.

Now, load your springs and driver pins that correspond to the new bottom pins in each chamber. Hold them in place with your follower. Load your bottom pins with the new key in the plug. The side-bar will depress, allowing the plug to be inserted into the shell. Replace the plug retainer and the tail-piece and your re-keying is complete.

Philip Loftus,
New York

ESP PICK SET WINNER

With the amount of foreign hardware growing everyday, it is inevitable that sooner or later, a locksmith will be called upon to service some of these products. This is particularly true if that locksmith does any work involving manufactured housing.

This "off-shore" hardware, ordered in large lots and nearly always masterkeyed has become the favored hardware of the producers of mobile, sectional and modular homes. It's cheap, convenient, and since it's masterkeyed, dealers can give their sales and service personnel copies of the keys to expedite their jobs. The problem is, this hardware can be difficult to "unmasterkey."

In servicing this hardware, I recommend using the Keedex K-6 Brass Follower when repinning. In just seconds, any and all master pins can be stripped without dumping the drivers and springs. The K-6 holds them in their respective positions, while you easily repin the plug to a new key.

The K-6 works just as well on most domestic hardware. However, I found that the standard slotted end of the follower wouldn't fit over the end of some Schlage plugs. I simply bought another one and modified the end with my Dremel Tool.

Grant P. Mitchell
New York

E-Z GM WHEEL PULLER WINNER

Here are two tips relevant to the use of my HPC 1200CM.

First, I've always had trouble keeping up with my Ford Tip Stop Gauge (Part 1054R). So, I glued the top of a ball point pen to the side of my 1200, just behind the cutter to store the tip stop. It's now out of the way, but always within reach.

Next, I use my 1200 to progression GM keys. To help speed up the process, when I first index a blank in the vise jaws using the shoulder gauge, I scribe a mark on the key blank where it lines up with the 1200's jaws. After making my initial cuts with the machine, my subsequent cuts are



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made using the mark on the blade of the key blank to index, rather than the shoulder stop. It goes a little faster for me that way.

When I have an operating key, I duplicate it and give my customer a nice, clean and blemish-free key.

George Houser,
Florida

FORT LOCK DISPLAY BOARD WINNER

This tip will work for any key-in-knob set or deadbolt that is installed in a hollow metal door, or as a gatelatch around a pool area. However, I originally used it to help hold Schlage locks with the short tail-pieces in place and keep them from moving out of alignment.

Go down to your local hardware store or home center and buy a length of dense 3/4" Poly-foam water pipe insulation. Cut off a piece about 1" thick and slide it over the lock or latch body after you have installed it in the door. (See illustration 3.) The latch is now held securely in place.

Larry Phipps
California

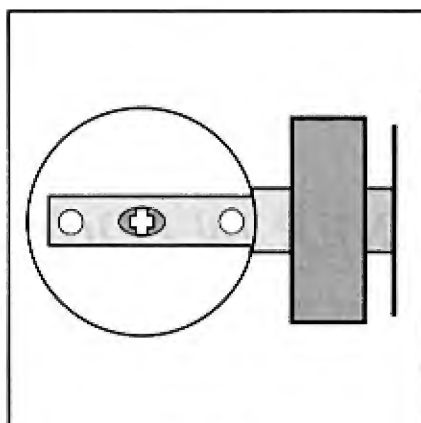


Illustration 3

To prevent losing a lock retaining clip in the door panel of a vehicle, tie a piece of string to a strong alligator-type clip. Before removing the door lock clip, snap the alligator clip to the lock retainer. By holding the other end of the string as you pry off the retainer, you can ensure that you'll be able to retrieve the lock retaining clip.

William Weaver,
Georgia

Sometimes, trying to shim open Sargent or other bible-type (key-in-knob) cylinders can be difficult because of the close tolerances

involved. I've found that if you put the cylinder in a vise and very gently squeeze it, it will allow the shim to work as you use either a blank key or a pick to raise the pins.

Louise Barrett,
Tennessee

When I work on metal doors, I carry a magnet that I salvaged from a sound speaker. I place the magnet on the door and it holds my screws, screw driver and even a socket with extension. Having everything I need right in front of me, at the proper height, sure makes the job go smoother.

Fred Spencer,
Pennsylvania

If you can't locate the brass shim needed to stabilize some foreign key blanks in a 1200CM, straighten out about half of a give-away key ring. Using the remaining curved end as a handle, insert your new "shim" at the bottom of the vice jaws; either over or under, as necessary. Now you can code cut the key with out the key blank shifting in the jaws.

Paul Carpenter,
Utah

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BITS & PIECES

Informative Tidbits for the Security Industry

A phone number for contacting Lockmasters which was featured in The National Locksmith's December 1993 Industry Profile section. The number has changed. The new numbers for obtain information regarding Lockmaster courses and products is 800-654-0637, fax is 606-885-7093.



by
Tom Seroogy

Dale Libby's December 1993 article describing the WASP manipulation tool also left a short phone number. For information on the WASP contact LeRoy Edenburn Enterprises at 313-483-2444.

To better serve their customers, Monaco Lock company is now providing a 24 hour "800" fax line. The new toll free number is 800-845-LOCK. Take advantage of this new service.

According to an Americans with Disabilities Act status report for the United States Department of Justice, Civil Rights Division, 1200 ADA violation complaints are currently being investigated. These complaints cover all categories of entities and a wide variety of violations. Some of these complaints include discriminatory policies, lack of auxiliary aids and failure to remove barriers in existing facilities. Over 60 percent of these complaints were of the barrier removal type.

While many of these complaints may not directly affect the locksmith, we are still in a position of advising customers regarding liability concerning ADA requirements for door hardware. Raising this issue can instill a customer's trust in you that other circumstances cannot.

Oh, by the way, it's been argued that ADA is virtually unenforceable due to the lack of staff needed to check and follow up on violations. According to recent reports, however, The U.S. Attorney General is hiring 500 new staff

to accommodate the enforcement of this law. Take advantage of it!

Security Lock Distributors is offering a new delivery service: Guaranteed overnight delivery to any location in the continental United States.


Orders made before 4:30pm EST will be delivered the next day anywhere within the United States, second day delivery is available at a lower cost. For more information or to obtain Security's complete catalog call toll free: 800-847-5625, or fax free: 800-878-6400.

Apparently there's been some confusion on what keyblank should be used with any given year Chrysler. To help clarify, Briggs & Stratton has supplied us with the following chart based on the Vehicle Identification

Number (Serial Number) of the car.

The Chrysler VIN consists of 17 characters or digits. The tenth character from the left is a letter that indicates the model year. This in turn will dictate what blank to use.

Year	Character	Code Series	B&S Blank
1989	K	F	593578
		G	593578
1990	L	G	594145
1991	M	G	594145
1992	N	G	594145
1993	P	J	595895
1994	R	L	596504

For example, if the VIN is: 1C3XV6616PD118050 the tenth character from the left is the letter "P." Based on the chart above, this vehicle is a 1993 year model that uses the J code series and B&S keyblank #595895. 



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by
Rick Segerstrom

THE SOUTHERN STEEL 10195 ELECTROLOCK

"The locks are used in controlling swinging doors, are jamb mounted and are recommended for use with a door position indicator."

In this article on prison security we are discussing the Southern Steel Model 10195 Electrolock. It is possible that I should have started with this lockset instead of the 10120 series. This lockset is used in low security inmate housing areas, and is controlled electrically or manually. The manual operations are done with standard type mortise cylinder locks, usually incorporating the high security type cylinders such as Medeco, ASSA, or one of several other brands. The locks are used in controlling swinging type doors, are jamb mounted, and are recommended to be used with a door position indicator.

Alright, the technical stuff:

10195: Electrolock with automatic locking

10195D: Electrolock without automatic locking

LOCK SIZE: 1-1/2" x 1-23/32" x 13-3/8"

LOCK WEIGHT: 6.5 pounds

BOLT SIZE: 5/8" diameter

BOLT THROW: 5/8"

As you can see from the technical specifications, this lock is similar to the electric deadbolt type locks that you install on a regular basis. Most probably you install the electric deadbolt on the door header, or maybe surface mounted onto the jamb. This lock is mounted into the jamb of the door and throws the bolt into the receiver mounted in the door itself.

There are several options available concerning the operation of this lock. A chart is included to show proper catalog numbers for the various functions associated with this lock.

Function

ELECTRIC- Unlocked electrically from remote console, or by key switch, or by push-button at the door. Automatically deadlocks when the door is closed.

MECHANICAL- Bolt retracted and extended by key at the door. When key internal switch is used, key will only retract bolt.

An important note here, Notice that you lose the ability to lock the door, or extend the bolt with the key when the optional internal key switch is utilized.

Standard Finish: US4 (optional US26D)

Case: Die Cast brass

Face plate: Brass

Lock Bolt: Nickel aluminum bronze

Cylinders and Keys: Optional electrical: 24VDC, 2.5 amp

Standard Features

- No protruding deadlatch mechanism accessible to inmates when door is open.
- Designed for mortise jamb mounting in standard door frame without visible lock pocket
- Automatic deadlocking of bolt
- Activated by power surge dual solenoids during power outages, bolt remains retracted mechanically without relying on continuous electric power to solenoid
- Bolt position indicator switch



Southern Steel's
10195B Electrolock.

- Non-Handed (except when internal key switch is specified)

Special Features

- Keyswitch either side or both sides
- Fail unlock version available
- Master key override- one key operates internal switch for electric bolt retraction. Other key retracts bolt mechanically
- Cylinder extenders for locks keyed stop side

General Notes

- The price of the lock does not include cylinders
- Each lock function requires a different wiring diagram
- Door position indicator switch, door closer, and heavy duty door pull are recommended

This lock is basic security at its simplest. No turning knobs or operating levers to gain access. Simply turn the key to retract the deadbolt for entry. When servicing this lock it is deceiving as to its simplicity. Although there are several parts on the lock that you can service, there are yet others that can only be serviced at the factory. An example of this is the ball seat area. This is a factory adjustment area only and should not be attempted in the field. Check with Southern Steel for additional information if you have a problem with this lock.

Since there is another lock so closely related to the 10195 Electrolock, I thought I would touch on it lightly while we're covering this lock. It is the Southern Steel Model 802 Electric Deadbolt. It differs in several ways. First, the actuation is done by 115 VAC, however, 24 VDC is an option. It has dual solenoid actuation for locking and unlocking. This lock can be equipped with a Mogul cylinder if desired. The 802 more closely resembles the electric deadbolts you are familiar with than does the 10195.

Technical

LOCK SIZE: 4-9/16" x 1-3/4" x 9"

LOCK WEIGHT: 9 pounds

BOLT SIZE: 5/8" diameter

BOLT THROW: 9/16"

APPLICATIONS:

Provides swinging doors with auxiliary security locking and unlocking from a remote location

Function

Unlocked electrically from a remote console, or by keyswitch or push-button at door. Automatically deadlocks when door is closed. Several special versions of this lock are available, including special casings for surface mounting so this can be added to existing systems for additional security.

Next month the 10125 and possibly the 10128.

Readers having questions or comments regarding detention security can write to Rick at *The National Locksmith*, 1533 Burgundy Pkwy., Streamwood, IL 60107.

THRU THE KEYHOLE



A Peek at Movers & Shakers in the Industry

ATTENTION MANUFACTURERS AND DISTRIBUTORS: Would you like your company and products to be profiled in *Thru The Keyhole*? Please call Managing Editor Tom Seroogy at (708) 837-2044.

Schlage Lock Company

If you visit any non-residential building in the United States — hospital, office building, military facility, school, city hall, or factory — chances are you'll be entering and leaving via Schlage locks. That's because the Schlage Lock Company is the nation's leading commercial lock manufacturer.

The Schlage Lock Company, was established in 1925 by Walter Schlage, a German immigrant and creator of the modern key-in-knob lock. Today, Schlage

is one of the world's best-known lock manufacturers, producing and marketing locks for the commercial, home-building and do-it yourself markets worldwide. The San Francisco-headquartered company leads the commercial and mid-to-high end residential lock markets in the United States. Schlage is a leader in new product introductions and speed of order-fulfillment.

Schlage employs 2,700 people worldwide, 750 of them in the Bay Area, and maintains manufacturing facilities in Security, Colorado; Tecate, Mexico; and San Francisco. The company is organized around four primary business units — commercial, retail, and residential — which correspond to the major segments of the domestic lockset market, and international.

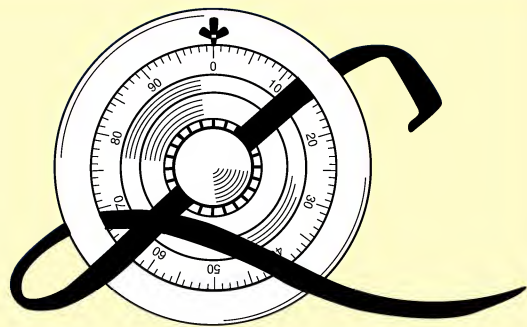
Schlage is owned by New Jersey-

based, worldwide equipment manufacturer, Ingersoll-Rand.

Schlage's primary marketplace strengths are its products' widely acknowledged quality of design, materials, manufacturing and reliability. Recognized for its distinctive, stepped-shape key, Schlage is known in the industry for the ease and speed with which it does business with building owners, security managers, architects, locksmiths, contractors, facility managers and specifiers — and for its post-sale support.

Schlage's headquarters are located in San Francisco.

In 1923, inventor Walter Schlage, who had more than 200 patents to his name, filed several patents on the now-familiar push-button cylindrical lock which has since become the standard design of the



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industry and is still marketed commercially as Schlage's "A-Series" of locks. Two years later, the newly-incorporated Schlage Lock Company was producing 20,000 locks a month.

Over the years, Schlage products became the preferred choice of architects, builders and locksmiths for office buildings, healthcare facilities, industrial complexes and residential developments. Now Schlage products are also prominent in the retail market among small contractors and do-it-yourself enthusiasts.

In 1974, Schlage Lock became part of Ingersoll-Rand, a diversified manufacturer of industrial, mining and construction equipment and components. Ingersoll-Rand is organized around three business segments, one of which is Bearings, Locks and Tools. Within that segment is the Door Hardware group comprised of Schlage and four other companies.

Schlage is a leading lock company with depth and credibility in commercial, retail and residential market segments. Schlage's three business units (Commercial, Residential, Retail) are expert in the entire vertical chain of each market.

For each market segment, Schlage Business Units are working on new product finishing technology, supply chain management, and broad-based training. Schlage Business Units catalyze new growth by constant product improvement, innovation, and rapid delivery.

Schlage is the undisputed leader in the commercial lock market in the United States with nearly 40 percent of market share. Schlage also leads the industry in new product introductions. In the commercial market, growth in education, governmental and healthcare segments have helped counter a recent decline in office building. The Americans with Disabilities Act, requiring buildings to be more accessible to those with disabilities, is also spawning sales in aftermarket commercial sales by demanding the installation of locks and knobs that comply with the new regulations.

The commercial Business Unit addresses three primary markets — new construction, reconstruction, and aftermarket replacement and upgrading — comprised of commercial, industrial, institutional and other non-residential buildings. Schlage's ability to deliver in the commercial sector with a breadth of quality products, reliable service and timely fulfillment of orders is now being realized by residential builder and retail customers.

In the retail/residential areas Schlage is aggressively courting consumers and contractors with an unusual, new TV ad campaign that positions the company as "The Doberman of Locks." New product development, new packaging and a system giving Schlage the industry's fastest retail order turnaround time (most of Schlage's stock lock orders are shipped to retailers in less than five days) are only a few of the advantages Schlage has in the retail/residential arena.

The domestic residential building industry is expected to pick up as credit practices loosen. New home construction should increase to 1.4 to 1.5 million new units annually over the next three years. High-end hardware, designer hardware, and a shift from knobs to levers is an area of high growth.

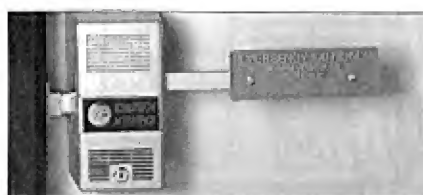
In the consumer market there also is a growing demand for "designer" locks which are decorative, yet highly secure. Schlage, known for its quality locks, is developing new products for this higher-end market.

For more information contact Schlage Lock Co., 2401 Bayshore Blvd., San Francisco, CA 94134, (415) 467-1100.

Detex

The leadership role Detex® Corporation enjoys in the safety and security hardware industry began with the inventive genius of early watch clock pioneer Abraham A. Newman. Newman revolutionized watchman security in 1902 when he introduced the first portable watch clock to receive unqualified approval by insurance rating organizations. Overnight, the innovative "Newman" watch clock became one of the principal products offered by Detex when the company was founded in 1923. Since then, Detex security innovations have expanded from watch clocks to state-of-the-art safety security hardware.

Not a company to rest on its laurels, Detex management is committed to providing superb value across a broad range of products. Detex manufactures and markets a comprehensive line of security products respected worldwide for trustworthy operation. Detex products include:



The ECL-230D Exit Control Lock.

- Access Control Systems ranging from the sophisticated Dentco II programmable combination keypad/card reader unit to the affordable Dentco III family of card insert, card swipe, and keypad units. Detex offers a complete range of single door access control products.


- Security Hardware Products including the industry-standard ECL-230 exit control lock, the magnetically-delayed ECL-230MD exit control lock, microprocessor-controlled ECL-8000 series of exit control locks, EA-500 and EA-2500 exit alarms, RIP-1100 and RIP-2000 remote indicating panels, and a broad variety of security hardware that ties all of these products into a total security system.

- Optical Turnstiles, Graphic/Zone Annunciator Panels, and Tailgate Detection Systems round out one of the most complete security hardware selections in the industry. Detex recently acquired F Systems in a move that provides one-stop shopping for all industrial security hardware needs. F Systems optical turnstiles are modern, innovative products that compliment virtually any interior motif while providing fool-proof monitoring and entry/exit control.

F Systems Graphic and zone annunciator panels provide an effective and cost-efficient means of displaying the status of security devices throughout a monitored facility. Providing visual as well as audible indication of alarm condition, F Systems graphic annunciator panels provide security personnel the ability to visually monitor alarm points on specific floors, levels, or complexes on a custom floor plan panel. Specially designed, layered plexiglas displays are used to provide distinctive backlit alarm indication.

The F System tailgate detection system is utilized with access control systems such as Detex Dentco II and II to ensure that only one pedestrian enters a secured passageway for each valid card or keypad read. This new system consists of two million-mount, active modulated infrared sensing arrays mounted on either side of the doorway or passageway.

Detex Corporation's leadership role in security hardware required that we remain on the leading edge of industry trends and government regulations. To this end, all applicable Detex products meet or exceed the requirements of the Americans With Disabilities Act of 1992.

For more info contact: Detex Corporation, 302 Detex Dr., New Braunfels, TX 78130, (800) 729-3839. 

OPENING THE FORD '94 MUSTANG

"Even with an all new body style, this car is relatively easy to open."

by Tom Lewis

December marked the month for the release of the all-new 1994 Ford Mustang. This vehicle has been completely redesigned from the ground up. There have been many changes and styles of the Mustang, from the Shelby to the Boss 302 and the Mach I and Mach II to the LX and GT styles of

a diamond or a rake pick for best results. The rotation on the passenger side door will be counter-clockwise to open.

If you find the picking too troublesome or just prefer using a car opening tool, your best choice will be HPC's Jim Dandy™ (CO-22), which is an

button on the passenger side door. Then, wedge the door between the glass and weather-stripping, keeping it even with the edge of the exterior door handle. Lower a light into the door and look for the vertical linkage rod that is connected to the button. Next, insert the Jim Dandy™ into the door in line



1. The new '94 Mustang.

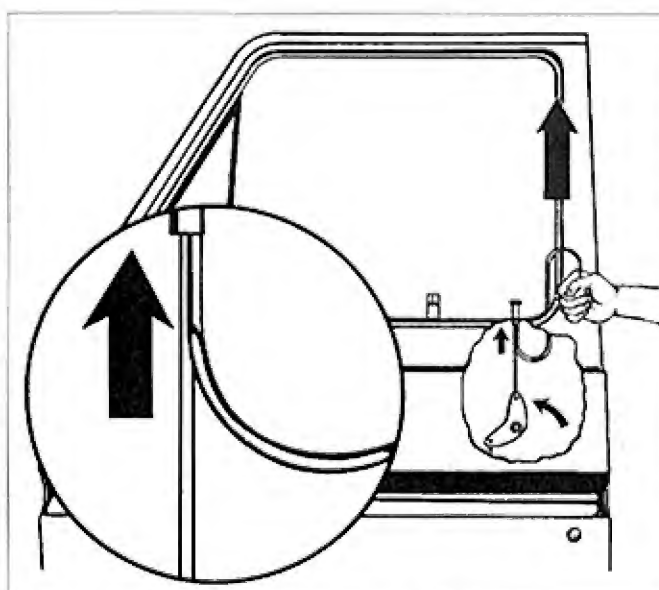


2. The inside passenger door. Notice the vertical lock button this model uses.

today. (See photograph 1.)

The all new 1994 Mustang comes with both driver's side air bag and passenger side air bags as standard equipment. The interior door panel is wider and thicker than on the earlier models. Ford is also using the 10 cut wafer locks in the doors, truck and a side bar lock in the ignition. (See photograph 2.)

There are many ways to open vehicles, such as impressioning a key, picking, sight reading and, of course, the use of a car opening tool. With the 1994 Ford Mustang you have two probable choices. Picking is one option, being that it is generally effective on 10 cut wafer locks. Though you may notice that the lock is a little bit more difficult to open than previous models, this is due to the fact that the wafer design was changed slightly. If you use variable tension on the wrench it should open. Use a double sided tension wrench and




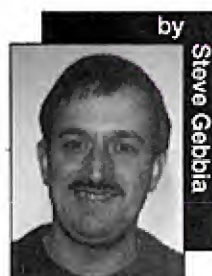
3. Using the HPC CO-22 to open the new Mustang.

under button style tool. The 1994 Ford Mustang has a vertical linkage button visible from the outside of the car.

To open this car, it is necessary to visually identify the vertical lock control

with the outside door handle, with the hook end of the tool facing the rear of the car, then, lower the tool down until the tip is just under the glass. Rotate the tool inward and lift it up so that the tip is located under the vertical lock control button. When the tool is in the correct position you will see the vertical lock control button. When the tool is in the correct position you will see the button move. Lift up slowly on the tool to unlock the door. Please Note: Do not use excessive force when using any car opening tool to manipulate linkage. (See illustration 3.)

When presented with a new vehicle that you have never opened, look for other ways to open the vehicle. It may be hooking a horizontal rod, moving a bell crank, or it may be as simple as picking the lock. Whatever task you are faced with, be creative; there's more than one way to open a vehicle. 



by
Steve Gebbia

ALARM LOCK'S TRILOGY

"The Alarm Lock Trilogy is an electronic, stand-alone access control lock which is reasonably priced, yet has many advanced features."

The Alarm Lock Trilogy is an electronic, stand-alone access control lock which is reasonably priced, yet has many advanced features normally found only on more expensive locks. This lock is available with knobs or ADA approved levers on both sides. It is also available with key-bypass in either a Schlage C keyway or Best type interchangeable core. All models can be released remotely without need for external power supply; all that is needed is the wire lead included with the lock and normally open push-button. Alarm Lock covers their DL2500LE with a two year warranty. (See photograph 1.)

The installation is not difficult, but there are a few special precautions that need to be taken to ensure proper operation and to keep the warranty intact.

Because of the size of the housing, a minimum of 6-1/2" clearance is required from the center of the crossbore to the top of the housing. If there is a deadbolt in this area, it will have to be moved a trim plate installed under the lock to cover the holes. This was the case at the site where this installation was made. (See photograph 2.) I chose to use two 4"

x 16" US28 push plates to allow room to install both the Trilogy and the deadbolt through the same plate. (See photograph 3.)

The entire lock is sealed against moisture, but if it is to be installed on an exterior door or other high-moisture area, the wiring connections must be sealed with silicone caulk. This will ensure proper operation even

in very wet conditions.

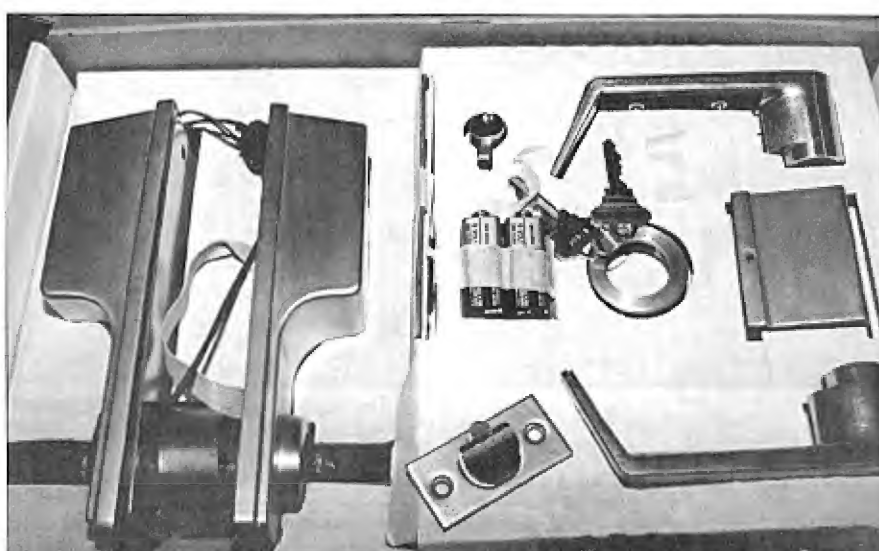
Another precaution which must be taken is to radius the edge of both sides of the hole through which the wires pass to prevent chafing of the wires leads.

Installation Steps

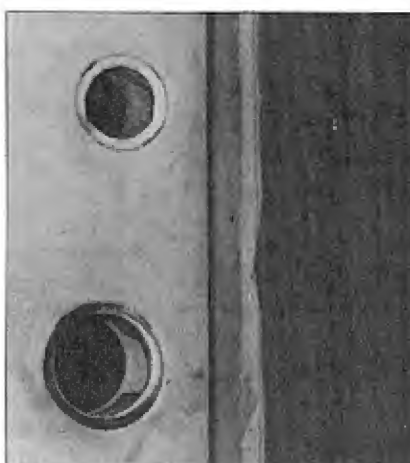
1. Mark and drill all holes. Standard backset is 2-3/4", but a 2-3/8" Schlage D series latch may be substituted. Be sure to create a radius edge to the 3/4" hole to prevent damage to the wires. (See photograph 4.)

2. After carefully passing the motor wire through the 2-1/8" hole and the ribbon cable through the 3/4" hole, insert the outside housing into the crossbore and check that the latch retractor is centered in the edgebore. (See photograph 5.) If it is not centered, adjust for the door thickness. Then, remove the housing far enough to clear the hole, install the latch, and reinstall the outside housing making sure the motor wire is not caught on the latch or lock chassis.

The lock comes factory set for a 1-3/4" thick door, but will fit doors 1-3/8" to 2" thick. To adjust the lock, first remove the six screws holding the backplate on the outside housing and



1. The Trilogy lever lock must be ordered handed. Make sure the handing of the door is known before ordering the lever model.

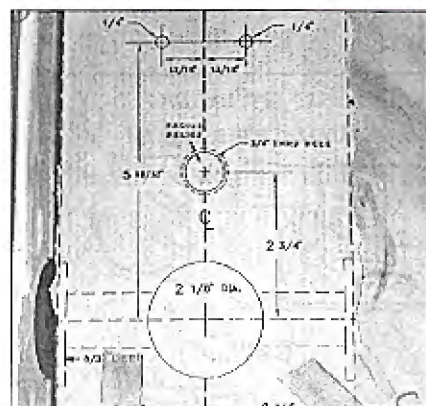


2. The previous door prep on this door did not allow installation of the Trilogy without first making some minor modifications.

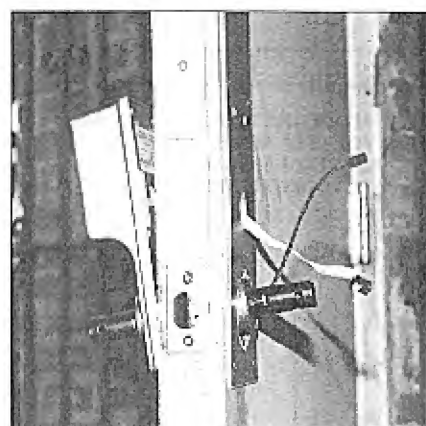


3. A push plate was added to both the interior and exterior of this door and allowed for the mounting of both the Trilogy and a deadbolt above it.

Continued from page 78



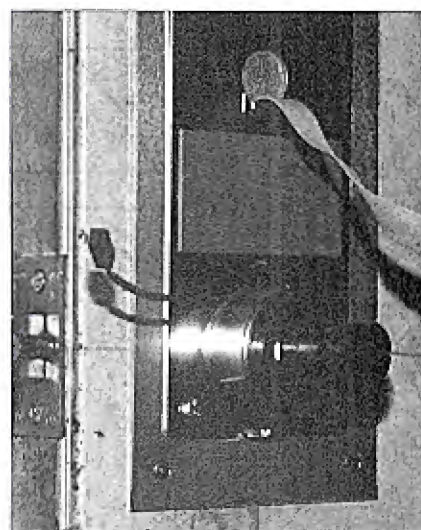
4. Using the provided template to mark for drilling.



5. Mounting the outside housing. Carefully run the wiring through to the other side of the crossbore. Check the latch for centering and operation.

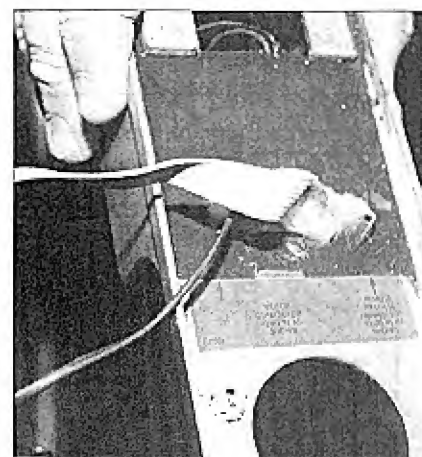
remove the backplate. You will have to feed the motor wire through the hole in the backplate. Remove the lock chassis from the housing and adjust the outside spanner collar in or out for proper fit. Reinstall lock chassis in housing, thread motor wire back through plate, and reinstall backplate on outside housing.

3. Slide the inside mounting plate over the wires and install the spanner

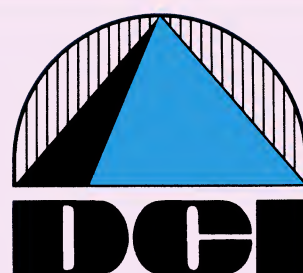


6. Installing the inside mounting plate and spanner collar.

collar on the lock chassis. (See photograph 6.) The motor wire (attached to the lock chassis) passes through the small hole just above the crossbore, and the keypad ribbon cable goes through the 3/4" hole in the middle of the plate. Make sure not to pinch the wires, check that the plate is straight on the door and install two #8 screws at the bottom of the plate. Install and tighten the inside spanner collar. Do not install the two mounting screws at the top of the plate yet.



7. Connecting and caulking the inside connections.



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4. Connect the wires to the inside assembly. When inserted properly, they will snap into place. If this is an exterior application, all wiring connections should be covered with silicone caulk above the top of the connector. If the remote release is not used, this space should also be covered with silicone caulk. (See photograph 7.)

5. Carefully thread the wires back into their holes as you bring the inside assembly into position against the mounting plate. Be sure that you don't pinch the wires between the housing and the plate.

6. Install two 8-32 x 2-1/4" machine screws at the top of the inside housing, connecting them to the outside housing. Also install one 6-32 x 5/16" machine screw at the bottom of the inside housing.

7. Install the key cylinder into the outside lever and install both levers. If you are using a replacement cylinder, the overall length from the face of the plug to the rear of the tailpiece must be the same length as the original. If it is any longer, it will bind the clutch and the motor will not be able to operate properly. The key may turn, but the codes will not operate.

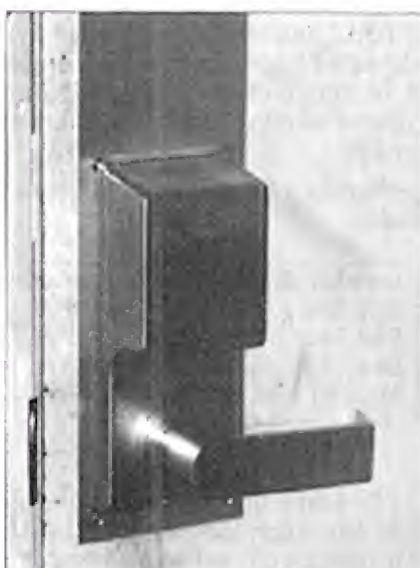
8. Connect the batteries and place them inside the plastic box provided. This is added protection against moisture. When you connect the batteries, the lock will beep to verify that the lock is functional. (See photograph 8.)

9. Install the strike plate.

The installation is now complete. (See photographs 9 and 10.) All that is left is to program the lock. This can be as simple or as complex as you wish. Up to seventeen different codes can be programmed into the lock. This includes one Master code, one Management code, and 15 User codes. The Master code operates all functions of the lock including: allowing access, enabling and disabling User codes, changing any or all codes, enabling or disabling passage function, and changing the unlock time delay. The Management code allows access, and changes, enables or disables User codes. User codes allow access but do not allow any other function. A valid code can be from three to five digits, pressed either individually (1 then 2 then 3) or at the same time (1 & 2 the 3 & 4 then 5 & 2). Each key push counts as a



8. The batteries are installed.



9. The inside and

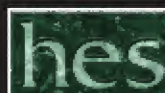


10. ...the outside. Only programming is left.

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digit. So, 1-2-3 and 1&2-3& 4-2&4 are both three digit codes. All codes in the system must be the same length as the Master code.

All locks arrive with a factory set Master code of 1-2-3-4-5 (pressed individually). The Master code must be changed before any other codes or other functions are entered. Changing a code involves entering three things: the Master code, location code, and new code. Before and after entering any location code, the Alarm Lock logo key (AL) must be pressed. Codes must be entered before the unit relocks. The Master code must be entered twice, all other codes need only be entered once.

When a valid code is entered, the lock will beep six times. Four beeps signals an invalid code has been entered. If three invalid codes are entered in a row, the lock shuts down and will not accept any key presses for about a minute. After this time is up, the lock will beep twice.

To set a new Master code enter the existing Master code, the location code (AL-1-AL), the new Master code, location code (AL-1-AL), new master code. An example would be:

1-2-3-4-5, AL-1-AL, 3-1-2, AL-1-AL, 3-1-2

This changed the Master code from the factory setting to 3-1-2.

A Management code is not required, but if you wish to use one, enter: master code, management code location (AL-2-AL), new management code. To set a Management code of 5-5-5 in our sample system, enter:

3-1-2, AL-2-AL, 5-5-5.

The User codes are set up as shown below:

Blank One	Blank Two	Blank Three
1-1	2-1	3-1
1-2	2-2	3-2
1-3	2-3	3-3
1-4	2-4	3-4
1-5	2-5	3-5

These are the locations for the User codes. To set User 1-1 with a code of 3-3-3, enter: 3-1-2 (master code), AL-1-1-AL (location code), 3-3-3 (new user code). User codes can be disabled or enabled individually, by bank, or all user codes can be disabled at once. To disable an individual User code, enter the Master code, logo key,

User location, logo key and wait for unit to relock. In our sample system, to disable User 1-1, enter: 3-1-2, AL-1-1-AL and wait until it relocks.

User 1-1 is now locked out. To re-enable this code, repeat the procedure, enter: 3-1-2, AL-1-1-AL and wait until it relocks. User code 1-1 is now re-enabled.

To lock out an entire bank is just as easy. Enter the Master code, logo key, bank disable code, logo key and wait. In our sample, to lock out Bank One, enter: 3-1-2, AL-5-1-AL, and wait. User code 1-1 through 1-5 are now disabled. To re-enable bank one, enter 3-1-2, AL-4-1-AL, and wait. User codes 1-1 through 1-5 now operate. The number 5 in the lockout code indicates 'disable' and the number '4' indicates 'enable'.

Here is a list of disable and enable codes:

Location	Disable Code	Enable Code
Bank One	AL-5-1-AL	AL-4-1-AL
Bank Two	AL-5-2-AL	AL-4-2-AL
Bank Three	AL-5-3-AL	AL-4-3-AL
All Banks	AL-5-5-AL	AL-4-5-AL

To leave the lock in a passage function, enter: Master code, AL-4-AL. To relock unit, enter: Master code, AL-5-AL.

Unlock time can be adjusted from five to 20 seconds. Five or 10 seconds works best in most situations. The Trilogy comes with the unlock time factory set at five seconds. To adjust this, enter: Master code, time location code, and time interval desired. In our sample, to set an unlock time of 10 seconds, enter 3-1-2, AL-4-5-AL, then 2. The location code is 4-5 and the number 2 indicates 10 seconds.

User code 3-5 can be programmed as a regular User code or as a Service code. The Service code allows one-time only access. It is designed for situations where temporary access is required. Once the Service code has been entered and it relocks, it is automatically removed. For normal operation, use 3-5, as this User code location. To set 4-4-4 as User code 3-5, enter: 3-1-2, AL-3-5-AL, 4-4-4. For Service code operation, use 3 as the code location. So, a Service code of 4-4-4 would be programmed: 3-1-2, AL-3-AL, 4-4-4.


Lockouts can also be nested. An

example would be a foreman might disable User code 1-1 because this user is on vacation. At the end of the shift, a supervisor might lockout Bank One. The next morning when the supervisor re-enables Bank One, User code 1-1 is still disabled but User codes 1-2 through 1-5 still operate. Just remember that you must undo anything that you do. If you disable an individual code, you must re-enable it individually.

The Trilogy uses two 9 volt alkaline batteries and has a low battery warning feature. A dual tone beep will sound when any button is pressed if the batteries are low. Memory is held for about five minutes after the batteries are removed. Replacing both batteries within this time will keep all codes intact. If the batteries are allowed to go dead or are disconnected for longer than about five minutes, all codes will be lost. The lock will revert to the factory code.

Although it has no internal clock, the Alarm Lock Trilogy allows some rather advanced features at a modest prices. Even advanced programming is quite simple when you understand the system. Included with the lock is a cheat sheet with all the code locations to make programming simpler. Even if you get into trouble, all you have to do is disconnect to batteries, wait a few minutes for the memory to clear, and start from scratch. The factory code would now work and you can start from there.

With such a wide list of features at a reasonable price, the Trilogy DL2500LE from Alarm Lock is fast becoming the alternative to mechanical access control locks.

For more information contact: Alarm Lock Systems, Inc., 345 Bayview Ave., Amityville, NY 11701, (800) ALA-LOCK. 

MOVING?

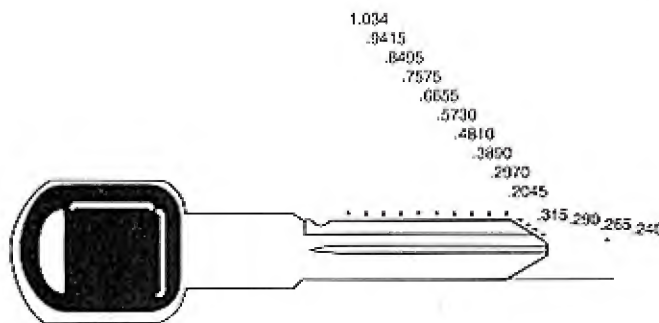
Please notify us six weeks prior to your move. Send your name, old address, and new address to *The National Locksmith*, ADDRESS CHANGE, 1533 Burgundy Pkwy., Streamwood, IL 60107.

SUBSCRIPTION QUESTIONS?

Please call Nancy at our Customer Service desk, (708) 665-0540.

KEY CODES

1994 GM Codes F000-F999 & L000-L999



The new 1994 GM code series includes 405 pages of over 100,000 active codes. GM, however, is not using all of the codes in any given year and the codes are being picked at random. To better serve the locksmith, over the next few months *The National Locksmith* is printing only those codes that have been confirmed to be in use on this year's GM vehicles. If you have a code that is not included, you can get the bitting by calling us at (708) 837-2044.

Spacing and Depths
using Universal
Micrometer Card #58.

	Spacing	Depth
1	.1850	.315
2	.2775	.290
3	.3700	.265
4	.4625	.240
5	.5550	
6	.6475	
7	.7400	
8	.8325	
9	.9250	
10	1.0175	



Key Profile

HPC 1200CM

Continental Code Card - #215
Cutter - CW1011
Stop - 1054R Tip Stop (Ford 10-Out)

Framon

Cut start -.216"
Cut to cut -.092", Spacing Block #3
Cutter - FC8445
Key Clamping - Lay spacing clip
F2MS552 flat on left side of vice and
align from tip.

Curtis

Cam - GM6
Carriage - GM6A

KEY BLANKS

B&S 595936
Silca GM37(EP)
Curtis B82
Iico P1102
EZ B82
Jet B82(PH)

F000-F999

F000 1313113324	F033 1312433112	F066 1313212243	F099 1312312432
F001 1312332213	F034 1313323213	F067 1313231123	F100 1313112443
F002 1313443344	F035 1312121344	F068 1312313444	F101 1312423324
F003 1312313244	F036 1313221124	F069 1312424343	F102 1312443243
F004 1313232134	F037 1312332434	F070 1312311243	F103 1313443222
F005 1312134422	F038 1313323423	F071 1313323243	F104 1313423433
F006 1313123324	F039 1312344322	F072 1313221313	F105 1313322132
F007 1313131222	F040 1313234312	F073 1313442132	F106 1313124242
F008 1312442134	F041 1312124422	F074 1312231342	F107 1312133243
F009 1313113344	F042 1312313134	F075 1313321324	F108 1312332312
F010 1312332242	F043 1313124434	F076 1312213322	F109 1312123324
F011 1313213442	F044 1312342243	F077 1312133422	F110 1313442423
F012 1312132443	F045 1312134342	F078 1312431224	F111 1312432422
F013 1313213323	F046 1313131224	F079 1312331244	F112 1313242343
F014 1313232133	F047 1313212444	F080 1313134324	F113 1312232423
F015 1312322343	F048 1313434344	F081 1312334224	F114 1312213213
F016 1312243242	F049 1312343223	F082 1312122124	F115 1312443122
F017 1313432342	F050 1313113233	F083 1312213243	F116 1313443122
F018 1312324223	F051 1312322432	F084 1312313312	F117 1312311233
F019 1313123212	F052 1312431242	F085 1313221322	F118 1312344242
F020 1313342123	F053 1313342244	F086 1313132343	F119 1313432433
F021 1312244222	F054 1312343423	F087 1312123424	F120 1312212433
F022 1313424213	F055 1313432312	F088 1313342112	F121 1312312244
F023 1312431233	F056 1312132422	F089 1313134342	F122 1313223443
F024 1312212243	F057 1312343224	F090 1312342112	F123 1313113242
F025 1312434233	F058 1312312323	F091 1313432434	F124 1313122312
F026 1312443113	F059 1313123444	F092 1313431342	F125 1313134234
F027 1313323242	F060 1313343244	F093 1313232313	F126 1313432444
F028 1313121242	F061 1312234344	F094 1312431324	F127 1312343312
F029 1313321123	F062 1313132122	F095 1313242434	F128 1313211232
F030 1313223134	F063 1312433113	F096 1312124343	F129 1313221324
F031 1312212234	F064 1312321333	F097 1313234232	F130 1313224342
F032 1313342342	F065 1313122334	F098 1313434232	F131 1313242123



1994 GM Codes

F000-F999

F132	1312331323	F196	1313213134	F260	1313424312	F324	1313343112
F133	1312331213	F197	1312424423	F261	1313434324	F325	1312342132
F134	1313223444	F198	1312334222	F262	1312433213	F326	1312242434
F135	1312312442	F199	1313123443	F263	1312242344	F327	1312134324
F136	1313134424	F200	1312343113	F264	1313434233	F328	1312431124
F137	1312242123	F201	1313132432	F265	1312134244	F329	1313122133
F138	1313434322	F202	1313134432	F266	1312443133	F330	1313134244
F139	1312344324	F203	1312423434	F267	1312124423	F331	1312332134
F140	1313421232	F204	1313311344	F268	1312122434	F332	1313343423
F141	1312442334	F205	1313443324	F269	1312342313	F333	1312213313
F142	1312232432	F206	1313213343	F270	1313124432	F334	1313224423
F143	1313342134	F207	1312434342	F271	1312342442	F335	1313344323
F144	1312211324	F208	1312243232	F272	1312134232	F336	1312331324
F145	1312213123	F209	1312434224	F273	1312124242	F337	1312342434
F146	1313343243	F210	1313424323	F274	1313223434	F338	1312211232
F147	1313132313	F211	1313443113	F275	1313342243	F339	1313234243
F148	1312243244	F212	1312423122	F276	1313421312	F340	1313213423
F149	1313121334	F213	1312324212	F277	1313112242	F341	1313112422
F150	1312124332	F214	1313442422	F278	1312342122	F342	1313423124
F151	1312423433	F215	1313242233	F279	1313322424	F343	1312132122
F152	1313343422	F216	1312212134	F280	1312424424	F344	1312131323
F153	1313243122	F217	1312242243	F281	1312334212	F345	1312442212
F154	1312334324	F218	1313132312	F282	1313124422	F346	1312431134
F155	1313434212	F219	1313322344	F283	1313232312	F347	1312322133
F156	1312324342	F220	1312343342	F284	1313422423	F348	1313122423
F157	1312244223	F221	1313123124	F285	1312421344	F349	1313232432
F158	1312433122	F222	1312422334	F286	1312421132	F350	1313223342
F159	1312313443	F223	1313322433	F287	1312331123	F351	1312124234
F160	1313213222	F224	1313313244	F288	1313134222	F352	1313131244
F161	1312242113	F225	1313422424	F289	1313211343	F353	1312331322
F162	1313212242	F226	1313213212	F290	1313312234	F354	1312422313
F163	1312234223	F227	1312443123	F291	1312313424	F355	1312234213
F164	1313423244	F228	1313244322	F292	1312344323	F356	1313313422
F165	1313442112	F229	1312242134	F293	1312231343	F357	1312231323
F166	1312134234	F230	1312443423	F294	1313243434	F358	1313343224
F167	1312323434	F231	1313211233	F295	1312443424	F359	1313322324
F168	1313133423	F232	1312422132	F296	1313244342	F360	1312312132
F169	1312311333	F233	1312422133	F297	1313432313	F361	1313123434
F170	1312323213	F234	1313132443	F298	1313342442	F362	1313322443
F171	1312122342	F235	1313321233	F299	1312124434	F363	1313234212
F172	1313124244	F236	1313124322	F300	1312343432	F364	1312133124
F173	1312423443	F237	1313122443	F301	1312424233	F365	1313244312
F174	1313212322	F238	1313342212	F302	1312242433	F366	1313311242
F175	1312231232	F239	1312334423	F303	1312243124	F367	1313342443
F176	1313213223	F240	1312331212	F304	1313132344	F368	1313321243
F177	1312434232	F241	1312422134	F305	1312212334	F369	1312234212
F178	1313342124	F242	1313121344	F306	1312121244	F370	1312442234
F179	1313231122	F243	1312442342	F307	1312312434	F371	1313232444
F180	1313424223	F244	1313343223	F308	1313233212	F372	1313312313
F181	1313442432	F245	1312442213	F309	1312334344	F373	1312342213
F182	1312323422	F246	1312312424	F310	1312332422	F374	1312311334
F183	1312243424	F247	1312313313	F311	1312331132	F375	1312133224
F184	1313423213	F248	1312323212	F312	1312234422	F376	1313232242
F185	1312213434	F249	1312234242	F313	1312431334	F377	1312242112
F186	1313424332	F250	1313243113	F314	1312332123	F378	1313234422
F187	1313221232	F251	1312134313	F315	1312421334	F379	1312322443
F188	1313132433	F252	1312131244	F316	1313124223	F380	1313233423
F189	1313321344	F253	1312324213	F317	1313424343	F381	1313221224
F190	1312422343	F254	1313242344	F318	1312434234	F382	1313213224
F191	1313423113	F255	1313134224	F319	1313344342	F383	1313131243
F192	1312123444	F256	1313134422	F320	1312313432	F384	1312213323
F193	1313322342	F257	1313213424	F321	1312233112	F385	1312232344
F194	1312122433	F258	1313223313	F322	1313232123	F386	1312344233
F195	1312421324	F259	1313344234	F323	1312313223	F387	1313423312



1994 GM Codes

F000-F999

F388	1312242312	F452	1313423444	F516	1313224422	F580	1312243112
F389	1312433123	F453	1313231212	F517	1312324323	F581	1312131223
F390	1313131344	F454	1313232113	F518	1313442323	F582	1312233224
F391	1312342133	F455	1312312443	F519	1313434223	F583	1313243234
F392	1312442332	F456	1313343124	F520	1313132134	F584	1312332442
F393	1312424212	F457	1312122444	F521	1313242424	F585	1312432313
F394	1312312433	F458	1312323243	F522	1313224424	F586	1312332444
F395	1312121343	F459	1312133212	F523	1312234233	F587	1313242443
F396	1313223213	F460	1313122434	F524	1313321232	F588	1313324213
F397	1313431134	F461	1313422344	F525	1313243133	F589	1312133434
F398	1312424434	F462	1312424243	F526	1313342433	F590	1312312123
F399	1313231132	F463	1312312242	F527	1312343324	F591	1313232213
F400	1313432213	F464	1313122344	F528	1313313122	F592	1312332113
F401	1312242322	F465	1312134323	F529	1312443422	F593	1312124432
F402	1312122324	F466	1313443232	F530	1312422342	F594	1313422312
F403	1312231312	F467	1312332132	F531	1313324223	F595	1312443132
F404	1313134323	F468	1312242232	F532	1313323112	F596	1312313133
F405	1312324423	F469	1312242432	F533	1312123132	F597	1313131323
F406	1313224243	F470	1313133424	F534	1312213224	F598	1313211324
F407	1312124344	F471	1313124213	F535	1313421133	F599	1313132244
F408	1312422124	F472	1312324332	F536	1312434424	F600	1312211332
F409	1313212433	F473	1312443242	F537	1313431322	F601	1312212444
F410	1312234324	F474	1313233444	F538	1313322444	F602	1313442122
F411	1313224212	F475	1313213124	F539	1312431323	F603	1312324333
F412	1313132423	F476	1312342244	F540	1313211323	F604	1312232112
F413	1313124343	F477	1313422113	F541	1312231213	F605	1312122132
F414	1312133122	F478	1312342334	F542	1313134312	F606	1313221123
F415	1312323133	F479	1313312433	F543	1312243342	F607	1312213312
F416	1313321312	F480	1313424244	F544	1312332243	F608	1313122343
F417	1312324313	F481	1312342234	F545	1312243324	F609	1312323342
F418	1312334313	F482	1312431243	F546	1313243422	F610	1312131242
F419	1313223344	F483	1313122342	F547	1312321243	F611	1313213234
F420	1312334432	F484	1312234322	F548	1312124433	F612	1312123433
F421	1312321323	F485	1312311232	F549	1313132342	F613	1312422423
F422	1312433422	F486	1312123422	F550	1312442343	F614	1313434313
F423	1313234432	F487	1313343242	F551	1312133132	F615	1313123134
F424	1313224224	F488	1313432132	F552	1312321313	F616	1312123242
F425	1313442324	F489	1313242124	F553	1312342422	F617	1313244233
F426	1312434432	F490	1313313222	F554	1312344232	F618	1313212133
F427	1313321124	F491	1312313224	F555	1312422443	F619	1312242313
F428	1313442243	F492	1313343222	F556	1312232133	F620	1312124244
F429	1312243224	F493	1313311233	F557	1312242124	F621	1313122124
F430	1313232344	F494	1312232312	F558	1313122432	F622	1313134213
F431	1312434344	F495	1312323134	F559	1312124424	F623	1312334223
F432	1312313433	F496	1313433212	F560	1312321334	F624	1313431244
F433	1312244342	F497	1312443124	F561	1313133123	F625	1313312133
F434	1313224232	F498	1312424313	F562	1312323113	F626	1313424242
F435	1312331312	F499	1312212133	F563	1313342233	F627	1312324243
F436	1313433124	F500	1313234242	F564	1313422444	F628	1312431343
F437	1312431223	F501	1313234244	F565	1312232123	F629	1312234334
F438	1312132313	F502	1313322124	F566	1312321342	F630	1313233224
F439	1312134242	F503	1313442342	F567	1313213422	F631	1313122132
F440	1312234432	F504	1312134233	F568	1312321232	F632	1312231322
F441	1312443434	F505	1312312134	F569	1313234424	F633	1313423134
F442	1312322434	F506	1312423212	F570	1312211334	F634	1312424234
F443	1313434323	F507	1313113424	F571	1312423444	F635	1312233422
F444	1312132424	F508	1313223123	F572	1312421343	F636	1312243223
F445	1312323443	F509	1313434342	F573	1313134232	F637	1312232234
F446	1312232334	F510	1312323444	F574	1313234323	F638	1312423312
F447	1313342122	F511	1313134344	F575	1312213242	F639	1312421123
F448	1312442433	F512	1313113433	F576	1313344212	F640	1313232244
F449	1312423313	F513	1312343222	F577	1313123242	F641	1312344312
F450	1313442234	F514	1312342423	F578	1312331233	F642	1312124224
F451	1312323242	F515	1312423423	F579	1313113224	F643	1312234243



1994 GM Codes F000-F999

F644	1312132312	F708	1313122433	F772	1313231133	F836	1312122134
F645	1312234434	F709	1312334234	F773	1313212134	F837	1312232442
F646	1312212123	F710	1312243134	F774	1312123434	F838	1312343134
F647	1313324244	F711	1312313222	F775	1312432444	F839	1312321343
F648	1312244242	F712	1313431243	F776	1312421342	F840	1313342343
F649	1312122442	F713	1313432443	F777	1312212322	F841	1313421322
F650	1312442432	F714	1312231132	F778	1312243432	F842	1313324212
F651	1312323313	F715	1313132132	F779	1313213123	F843	1313422442
F652	1313122313	F716	1313212443	F780	1312321312	F844	1312423242
F653	1312321332	F717	1312233423	F781	1313324324	F845	1312442434
F654	1312231324	F718	1312434243	F782	1313124344	F846	1312442244
F655	1313421224	F719	1312331243	F783	1312233242	F847	1312124243
F656	1313422432	F720	1312343243	F784	1313312442	F848	1312423422
F657	1313313442	F721	1312342333	F785	1313321343	F849	1312321133
F658	1313324242	F722	1313123442	F786	1313131342	F850	1312233124
F659	1313311323	F723	1313323244	F787	1313213344	F851	1312313344
F660	1313223433	F724	1312122432	F788	1313434432	F852	1312132123
F661	1312424333	F725	1312242333	F789	1313422343	F853	1313242332
F662	1313443244	F726	1312332433	F790	1313243312	F854	1313344324
F663	1313242213	F727	1312132442	F791	1313213312	F855	1313442424
F664	1312344213	F728	1313124212	F792	1312242233	F856	1312242342
F665	1312213223	F729	1313324234	F793	1313212234	F857	1313432423
F666	1313134423	F730	1313311232	F794	1312213444	F858	1312122424
F667	1312213443	F731	1313232423	F795	1313323123	F859	1312212242
F668	1313322133	F732	1312231243	F796	1312343123	F860	1313312242
F669	1313442322	F733	1313324323	F797	1313344242	F861	1313344322
F670	1312321233	F734	1313424422	F798	1313231243	F862	1313124433
F671	1313312422	F735	1313242324	F799	1312313322	F863	1313422334
F672	1312232324	F736	1313242312	F800	1313132123	F864	1312332342
F673	1313112243	F737	1312234313	F801	1312432113	F865	1312234342
F674	1313321242	F738	1312242334	F802	1313134434	F866	1312123342
F675	1312443313	F739	1312442133	F803	1312232342	F867	1312442132
F676	1312233432	F740	1313123213	F804	1313123243	F868	1312323224
F677	1313242342	F741	1312431322	F805	1313133422	F869	1312133444
F678	1313433423	F742	1313424432	F806	1313433122	F870	1313234423
F679	1313323424	F743	1312344243	F807	1312334422	F871	1313423122
F680	1312211342	F744	1312243434	F808	1312434423	F872	1312231122
F681	1312244212	F745	1313424234	F809	1312213432	F873	1312312312
F682	1313321213	F746	1312133134	F810	1312331122	F874	1313133444
F683	1312233442	F747	1313421213	F811	1313112423	F875	1313212332
F684	1312231313	F748	1313443124	F812	1312421323	F876	1313224434
F685	1313112333	F749	1313324344	F813	1312311244	F877	1313324432
F686	1313311324	F750	1313344312	F814	1313231322	F878	1312442124
F687	1312424312	F751	1312133442	F815	1312132213	F879	1313223113
F688	1312234234	F752	1313324312	F816	1312244334	F880	1312132423
F689	1313124332	F753	1312131332	F817	1312231212	F881	1312443344
F690	1313313124	F754	1312231332	F818	1312211344	F882	1312123124
F691	1313313223	F755	1312434334	F819	1312313342	F883	1313243224
F692	1313431323	F756	1313211332	F820	1313232424	F884	1312234423
F693	1313233112	F757	1313233122	F821	1313433242	F885	1313124334
F694	1312331313	F758	1312432342	F822	1312242212	F886	1313121224
F695	1313242442	F759	1313423123	F823	1313443134	F887	1312324422
F696	1312213233	F760	1312311342	F824	1313231344	F888	1312423134
F697	1312124212	F761	1312321124	F825	1312432442	F889	1313313424
F698	1313232433	F762	1312123212	F826	1313443133	F890	1312332344
F699	1312213343	F763	1313342344	F827	1312423112	F891	1313421333
F700	1312342342	F764	1313213232	F828	1313234223	F892	1312232213
F701	1312344224	F765	1313131324	F829	1313423344	F893	1312311242
F702	1313244212	F766	1312322344	F830	1312313323	F894	1312343232
F703	1312312313	F767	1313121244	F831	1313121232	F895	1313134322
F704	1312324344	F768	1312243113	F832	1312243312	F896	1313242423
F705	1313121233	F769	1313432324	F833	1312322123	F897	1313224324
F706	1313224334	F770	1313342424	F834	1313243423	F898	1313232243
F707	1312442422	F771	1312123344	F835	1312321242	F899	1312122312



1994 GM Codes

F000-F999 & L000-L999

F900 1312233234
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 F902 1312332124
 F903 1313424313
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 F905 1313434244
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 F915 1312344223
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L000-L999

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 L150 2133232343
 L151 2131342343



1994 GM Codes L000-L999

L152	2131313422	L180	2132331222	L208	2133232423	L236	2132243424
L153	2132312444	L181	2132434224	L209	2132324313	L237	2133121323
L154	2132231343	L182	2131344243	L210	2132321334	L238	2132321342
L155	2132422443	L183	2133132234	L211	2133132343	L239	2132424324
L156	2131323224	L184	2133212113	L212	2131242212	L240	2132212442
L157	2131313244	L185	2132231133	L213	2131332342	L241	2131244243
L158	2132422113	L186	2132124244	L214	2132113423	L242	2131334243
L159	2133131223	L187	2133134242	L215	2132434223	L243	2132344232
L160	2132432434	L188	2133133113	L216	2131313324	L244	2133223134
L161	2133112124	L189	2133131133	L217	2133234342	L245	2132131132
L162	2132423432	L190	2132124213	L218	2132323112	L246	2132244324
L163	2132331312	L191	2132121232	L219	2131343123	L247	2132443434
L164	2133212313	L192	2131323244	L220	2131312333	L248	2132431243
L165	2131244223	L193	2132324342	L221	2133124342	L249	2131321123
L166	2132424242	L194	2131244232	L222	2133233212	L250	2132213422
L167	2133132113	L195	2133213242	L223	2133223234	L251	2132321333
L168	2131331123	L196	2133233213	L224	2133113444	L252	2132443432
L169	2132134344	L197	2132234212	L225	2132442244	L253	2132123212
L170	2132431212	L198	2131332234	L226	2132442342	L254	2133212442
L171	2131243232	L199	2131343124	L227	2131312242	L255	2133221342
L172	2132132134	L200	2131343344	L228	2132331232	L256	2133224334
L173	2131344212	L201	2132243342	L229	2132423242	L257	2133113342
L174	2133224213	L202	2132424344	L230	2132113344	L258	2132432423
L175	2132322342	L203	2133124432	L231	2131243423	L259	2133212444
L176	2133221334	L204	2133112443	L232	2132213342	L260	2133234243
L177	2132234213	L205	2132442122	L233	2133221133	L261	2132113244
L178	2132342112	L206	2133112312	L234	2132233113	L262	2132244212
L179	2132132342	L207	2132342133	L235	2132421323	L263	2133213432



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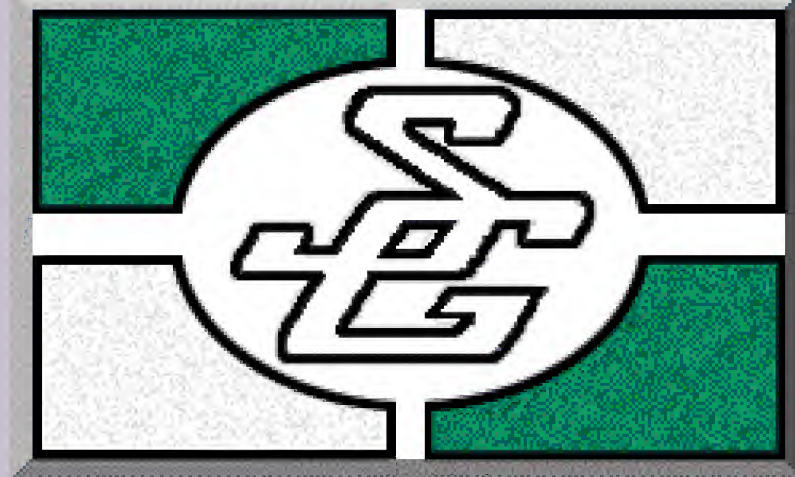
1994 GM Codes L000-L999

L264	2131313122	L328	2132431224	L392	2131343313	L456	2132242134
L265	2131242133	L329	2133113123	L393	2132331122	L457	2132124423
L266	2133132244	L330	2132422132	L394	2133221344	L458	2132431334
L267	2133232112	L331	2133132123	L395	2132311343	L459	2132313312
L268	2132122132	L332	2133233423	L396	2131243222	L460	2131311233
L269	2132232344	L333	2133131224	L397	2132443222	L461	2133233123
L270	2132312243	L334	2133213322	L398	2132433212	L462	2133242134
L271	2132433112	L335	2132232134	L399	2133234223	L463	2133233243
L272	2132233123	L336	2131334312	L400	2133113222	L464	2133243123
L273	2132332434	L337	2132312244	L401	2132334232	L465	2133124234
L274	2133124233	L338	2132234312	L402	2132344243	L466	2132342124
L275	2131332312	L339	2131313342	L403	2133223133	L467	2131312124
L276	2131334242	L340	2133113423	L404	2132134324	L468	2132421233
L277	2133213133	L341	2131313323	L405	2133233242	L469	2133124232
L278	2133231322	L342	2133223243	L406	2132212444	L470	2131342323
L279	2133212332	L343	2131312134	L407	2133213132	L471	2132433242
L280	2133243442	L344	2132344313	L408	2131331124	L472	2132423124
L281	2131332433	L345	2133223424	L409	2132422434	L473	2133243223
L282	2133243422	L346	2133242432	L410	2132321343	L474	2133221124
L283	2133212312	L347	2132321232	L411	2133232244	L475	2133113432
L284	2133213134	L348	2131342242	L412	2133132422	L476	2132324322
L285	2132343112	L349	2131342422	L413	2132132124	L477	2132132122
L286	2132123243	L350	2133213233	L414	2132321124	L478	2131332324
L287	2132332312	L351	2132112422	L415	2132213313	L479	2131323134
L288	2133234222	L352	2131244213	L416	2133121213	L480	2132433442
L289	2133213244	L353	2132322434	L417	2133211322	L481	2132124332
L290	2132434334	L354	2133122334	L418	2132121243	L482	2132233244
L291	2132242332	L355	2132134243	L419	2133231244	L483	2132432234
L292	2132424342	L356	2131332132	L420	2132332432	L484	2133124324
L293	2131343234	L357	2133133243	L421	2132231124	L485	2133131222
L294	2132133134	L358	2133212333	L422	2132123213	L486	2131344223
L295	2133224242	L359	2132431342	L423	2133113343	L487	2132432433
L296	2131242333	L360	2131342434	L424	2133221134	L488	2132112322
L297	2132131324	L361	2131332444	L425	2132233213	L489	2132213232
L298	2133121242	L362	2133131213	L426	2132234423	L490	2133234232
L299	2133122442	L363	2132122133	L427	2133134434	L491	2131243432
L300	2131324342	L364	2133212133	L428	2131311342	L492	2132313123
L301	2131331223	L365	2131243224	L429	2131321243	L493	2132343344
L302	2132121213	L366	2132423423	L430	2133123342	L494	2132242132
L303	2133223422	L367	2133133213	L431	2133224312	L495	2132244312
L304	2133132124	L368	2131321312	L432	2133113134	L496	2133132112
L305	2132422313	L369	2133133424	L433	2131324212	L497	2131244234
L306	2133224244	L370	2132442134	L434	2132433224	L498	2132243312
L307	2132442432	L371	2132324433	L435	2131312434	L499	2132313213
L308	2133231344	L372	2133232324	L436	2132434342	L500	2132212434
L309	2133243132	L373	2131312424	L437	2132343122	L501	2132234234
L310	2132312124	L374	2132422343	L438	2132113213	L502	2131332134
L311	2132334213	L375	2132121233	L439	2131243244	L503	2132321332
L312	2131242423	L376	2133212242	L440	2132433122	L504	2131334434
L313	2133113433	L377	2131334224	L441	2133133423	L505	2132324332
L314	2133113244	L378	2133132134	L442	2132434344	L506	2132123442
L315	2132312313	L379	2131332122	L443	2133223123	L507	2131321323
L316	2132321242	L380	2132244342	L444	2133243242	L508	2131322133
L317	2132332124	L381	2131343243	L445	2133131313	L509	2133242244
L318	2132443422	L382	2132343243	L446	2131343312	L510	2131342244
L319	2131323442	L383	2133122313	L447	2131324343	L511	2131332133
L320	2132132312	L384	2131342324	L448	2132424332	L512	2133112424
L321	2132123434	L385	2132211343	L449	2131334323	L513	2132231213
L322	2133123213	L386	2132131213	L450	2131321233	L514	2133122433
L323	2132131344	L387	2132243112	L451	2132132444	L515	2133113232
L324	2132242344	L388	2132442423	L452	2133124343	L516	2132434434
L325	2132324243	L389	2132243434	L453	2132131122	L517	2131324322
L326	2132232313	L390	2131311343	L454	2132232113	L518	2132113342
L327	2131313444	L391	2132122134	L455	2132342312	L519	2133124244



1994 GM Codes L000-L999

L520	2131313442	L548	2133242234	L576	2132231233	L604	2132443243
L521	2133212424	L549	2131334322	L577	2132343342	L605	2132423313
L522	2131342423	L550	2133221213	L578	2133231134	L606	2132212313
L523	2132123424	L551	2131244322	L579	2132432344	L607	2132113324
L524	2133124332	L552	2133132243	L580	2132422133	L608	2132323312
L525	2132433434	L553	2131323243	L581	2133213212	L609	2133123242
L526	2131342442	L554	2132231312	L582	2133123123	L610	2132122343
L527	2132342233	L555	2131334213	L583	2132434423	L611	2133131324
L528	2133242232	L556	2132243133	L584	2132132132	L612	2132133132
L529	2133242213	L557	2132434242	L585	2132231323	L613	2132323134
L530	2132123433	L558	2133224424	L586	2132113233	L614	2133242424
L531	2132434222	L559	2132423134	L587	2132323422	L615	2131334423
L532	2131242432	L560	2133112133	L588	2133133112	L616	2133221332
L533	2132132434	L561	2131323432	L589	2131311322	L617	2132213424
L534	2132123444	L562	2133231222	L590	2131312444	L618	2131323433
L535	2132433123	L563	2132231242	L591	2132113122	L619	2133112213
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L537	2133232132	L565	2133211224	L593	2132211242	L621	2131323434
L538	2133213443	L566	2132134334	L594	2131344224	L622	2133211243
L539	2131343432	L567	2132323313	L595	2131323133	L623	2132132324
L540	2133132242	L568	2132211243	L596	2133242113	L624	2132324423
L541	2132132433	L569	2132211322	L597	2132123112	L625	2132311242
L542	2133243432	L570	2131324224	L598	2132133224	L626	2132313442
L543	2132232312	L571	2131311344	L599	2133243133	L627	2133112134
L544	2131321242	L572	2132131124	L600	2131321343	L628	2133223313
L545	2131243123	L573	2132134223	L601	2132424323	L629	2133224343
L546	2131343134	L574	2132443122	L602	2133122434	L630	2133122342
L547	2132433132	L575	2132313444	L603	2133212132	L631	2132331134



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L000-L999

L632	2133134312	L696	2132123242	L760	2134221313	L824	2133421323
L633	2132131342	L697	2132332422	L761	2212132112	L825	2133443234
L634	2132423434	L698	2132442333	L762	2212133244	L826	2212133442
L635	2133221243	L699	2133242243	L763	2134343232	L827	2133421124
L636	2132122344	L700	2134223443	L764	2133443133	L828	2134432122
L637	2132424244	L701	2134422444	L765	2212342344	L829	2212313212
L638	2132312424	L702	2134342234	L766	2212323134	L830	2133434422
L639	2133121332	L703	2133442112	L767	2211244233	L831	2134421133
L640	2132443132	L704	2211331132	L768	2134332112	L832	2134243424
L641	2132133242	L705	2134313422	L769	2134212433	L833	2134312424
L642	2131323342	L706	2211321322	L770	2211234423	L834	2134421313
L643	2133212434	L707	2133432234	L771	2212331134	L835	2134221342
L644	2131323324	L708	2211342133	L772	2211313233	L836	2211331212
L645	2132231313	L709	2211231242	L773	2211324242	L837	2134324322
L646	2132433234	L710	2133422423	L774	2211332124	L838	2212323442
L647	2133121333	L711	2133424324	L775	2133442344	L839	2211313322
L648	2133224344	L712	2134232242	L776	2133422432	L840	2134221213
L649	2132434432	L713	2134321243	L777	2212311344	L841	2134334222
L650	2131322434	L714	2211313434	L778	2212211334	L842	2134342133
L651	2133112434	L715	2134424234	L779	2212342434	L843	2212311334
L652	2132244322	L716	2211324312	L780	2134331342	L844	2212132433
L653	2131322424	L717	2134423112	L781	2134344223	L845	2212313133
L654	2132432213	L718	2211231244	L782	2134421233	L846	2211323122
L655	2131313443	L719	2133431222	L783	2212113232	L847	2134342433
L656	2132311333	L720	2134422434	L784	2211321342	L848	2134344242
L657	2132313313	L721	2134224422	L785	2211213422	L849	2134324243
L658	2132423244	L722	2211322443	L786	2134224243	L850	2134331133
L659	2132311213	L723	2133442442	L787	2211234344	L851	2133422313
L660	2133243234	L724	2134313434	L788	2211312234	L852	2212323133
L661	2132442132	L725	2211342232	L789	2212134423	L853	2211221312
L662	2133224333	L726	2211334423	L790	2212112313	L854	2134224323
L663	2132243422	L727	2211332244	L791	2133443312	L855	2211212442
L664	2132442123	L728	2212342313	L792	2134234233	L856	2133433123
L665	2133113312	L729	2211221333	L793	2134323243	L857	2134211323
L666	2132313113	L730	2134242243	L794	2134212123	L858	2134211342
L667	2132112313	L731	2212134324	L795	2134324343	L859	2134424223
L668	2132231122	L732	2134213444	L796	2134223313	L860	2134313244
L669	2133243244	L733	2134312332	L797	2134431244	L861	2212343133
L670	2132133243	L734	2211221313	L798	2133421343	L862	2211231344
L671	2132233212	L735	2211232444	L799	2133423212	L863	2211334323
L672	2131324433	L736	2134234213	L800	2212123442	L864	2134312444
L673	2131323124	L737	2211224313	L801	2133431233	L865	2133422344
L674	2132442323	L738	2212342433	L802	2133421133	L866	2133423234
L675	2133113424	L739	2212133432	L803	2211243123	L867	2211342322
L676	2132332342	L740	2134432434	L804	2134323442	L868	2212334213
L677	2133121224	L741	2211233422	L805	2134422313	L869	2133421233
L678	2132432313	L742	2212234313	L806	2133421213	L870	2134223312
L679	2132331322	L743	2134331232	L807	2212331213	L871	2134221312
L680	2132134212	L744	2133423244	L808	2211344324	L872	2211234234
L681	2131324223	L745	2134244312	L809	2134311322	L873	2134313233
L682	2131342113	L746	2211322342	L810	2134223133	L874	2212312442
L683	2133124333	L747	2212342432	L811	2211312243	L875	2211334342
L684	2133124433	L748	2133424332	L812	2212313434	L876	2134321312
L685	2132421213	L749	2134334234	L813	2134212242	L877	2134423244
L686	2132213243	L750	2133432124	L814	2134232422	L878	2134331324
L687	2132231244	L751	2211324322	L815	2134213233	L879	2134424232
L688	2132234244	L752	2212342113	L816	2212311324	L880	2212134313
L689	2132211232	L753	2134232424	L817	2134244222	L881	2212131233
L690	2132121342	L754	2211343424	L818	2211324342	L882	2133431244
L691	2132424322	L755	2134213312	L819	2211342443	L883	2134342243
L692	2133133224	L756	2133423313	L820	2134342342	L884	2212244342
L693	2133242212	L757	2134213424	L821	2134432132	L885	2211223312
L694	2132133124	L758	2134232124	L822	2133424224	L886	2211323132
L695	2133134432	L759	2211211333	L823	2134224322	L887	2133433112

1994 GM Codes L000-L999

L888	2134211243	L916	2212323432	L944	2134312324	L972	2134322132
L889	2134334322	L917	2133443244	L945	2134312234	L973	2211213122
L890	2211244322	L918	2133443222	L946	2212323433	L974	2134342132
L891	2134242244	L919	2134331124	L947	2134243342	L975	2134213324
L892	2211313424	L920	2211332312	L948	2211342113	L976	2134431232
L893	2134223122	L921	2133442212	L949	2211223113	L977	2134242443
L894	2133424433	L922	2134421342	L950	2211232442	L978	2133421333
L895	2211332342	L923	2134423224	L951	2134324344	L979	2134233444
L896	2211232133	L924	2211343434	L952	2212311243	L980	2134431212
L897	2133443324	L925	2133423224	L953	2133442433	L981	2211242132
L898	2134421213	L926	2211311334	L954	2212313444	L982	2211324424
L899	2212121313	L927	2134233424	L955	2134424423	L983	2211332343
L900	2134242134	L928	2211343432	L956	2212123313	L984	2211313124
L901	2211331334	L929	2211243422	L957	2134321124	L985	2134421243
L902	2212231133	L930	2212331242	L958	2133433122	L986	2134344243
L903	2212313432	L931	2211233242	L959	2212113213	L987	2212334312
L904	2212133424	L932	2211243112	L960	2211243133	L988	2133432134
L905	2212312434	L933	2134321334	L961	2211322132	L989	2211321123
L906	2134424344	L934	2211313313	L962	2212112312	L990	2134344213
L907	2134424313	L935	2134311243	L963	2134323433	L991	2134431243
L908	2212331132	L936	2211244313	L964	2134331323	L992	2211313323
L909	2134242423	L937	2212343122	L965	2134231224	L993	2134322113
L910	2212334234	L938	2134223424	L966	2212113342	L994	2211231123
L911	2134212443	L939	2212324332	L967	2134431122	L995	2134323212
L912	2212323434	L940	2134332342	L968	2212334242	L996	2211224343
L913	2211344234	L941	2211331122	L969	2133442343	L997	2212342134
L914	2134433423	L942	2211343122	L970	2212332434	L998	2211343422
L915	2212311232	L943	2133442332	L971	2212134212	L999	2212321312

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TNL'S ADVENTURE

Continued from page 29

US market. Hybrids between US and Japanese manufacturers produced the Geo, Ford-Mazda, Chevrolet-Toyota-Isuzu-Suzuki, AMC/Jeep/Renault/Eagle and Chrysler-Mitsubishi quickly filled US driveways.

And of course, for the locksmith, hundreds of new keyways and codes. New tools, new cutting equipment, new technology.

Electronics started to move in and take the place of mechanical components. Most noticeably is the key/shifter interlock mechanisms encountered on many of the new vehicles produced by the end of the '80's. (See photograph 2.)

Higher security was reached through GM's VATS system, employed in the 1986 Corvette. So effective was this system (it reportedly reduced Corvette theft by over 46 percent that year) that it was later expanded to most of GM's high line and sports model vehicles. Later they would add the MATS to form as the mechanical end to increased security.

Chrysler and Ford introduce two piece shrouded columns and a modular ignition housing for several models. Ford

introduced their 10-cut system and made variations to that system from year to year and model to model. (See Jay Christy's Ford 10-cut application chart on page 12 of the May 1993 issue of The National Locksmith.)

Saab, Volvo, BMW adopted high security sidewinder style locks and keys for their upper end models. The first Japanese luxury car, Lexus, was introduced to compete with the high end German and British vehicles. With it came a new twist to the sidewinder locks and keys.

Also, finishing this short period of time, the locksmith found himself at odds with the police, tow companies and service stations over auto openings. Auto clubs and roadside assistance companies butted heads with locksmiths as well, often soliciting locksmiths to open vehicles for prices far below standard.

And as we jet into the '90's, the alliance between foreign and domestic companies continues. In 1991 Chevrolet introduced the Cavalier Alpha Technologies ignition (The National Locksmith, October 1992 page 22 and September 1993 page 23) a Nissan owned company. This ignition is the first in a series of steps to modularize the column by GM. 1994 promises the

Briggs & Stratton ignition system to the GM N body vehicle (The National Locksmith, November 1993 page 28).

Mandatory supplemental restraint systems also sparked a time of fear in the locksmith. It was now necessary to add airbags to the locksmith's pile of technological know-how.

And of course, door locks and linkage have become increasingly guarded. Car opening now demands catalogs, manuals and a variety of tools.

And as we look to the future? Well, we can be guaranteed more electronics. Currently both Ford Europe and Holden (GM Australia) are test driving vehicles with keys that incorporate electronic signaling devices. (Ford referring to theirs as PATS, passive anti-theft system.)

And for the locksmith? More tools, more manuals, more classes, more competency, and, hopefully, more money.

Like a museum tour, we've covered some of the most outstanding changes in automotive locksmithing, many smaller, yet important items have been passed by and are simply remembered by the few extra tools in the box and the few extra books on the shelf. And for all of us - from coat hanger to computer, the automotive locksmith marches on.



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Auto Security Products is located in Redmond, WA. For more information contact 206-556-1900.

Briggs & Stratton is located in Milwaukee, WI. For more information contact a B&S distributor.

ADA

Continued from page 36

there are legitimate circumstances, such as safety considerations, including crime prevention — these issues can be taken into account.

For example: A bank's teller counters are of a certain height, providing an increased measure of security. Although these counters may impose a barrier to disabled individuals in wheelchairs, there are safety and crime prevention issues to consider.

The high level of the teller counters provide security protection, and because there are alternatives that can be implemented, lowering of the teller counters may not be required. This could save a financial institution possibly millions of dollars in renovation costs for their branch locations. Safety and Security issues play a role in identifying the appropriateness of applying the ADA

regulations.

Several financial institutions that I have talked with are estimating that their expenditures to comply with ADA will be between eight and ten million dollars over the next 15 years. There are many such scenarios that may apply to your specific industry or profession. Increasing your knowledge of ADA will raise your awareness to recognize comparable circumstances.

The information presented in this article only touches upon the many components of ADA. The more you become educated on ADA the better you can sell the ADA applications.

Peter J. Lindemann is executive editor of ADA Times, a monthly newsletter about ADA regulations and compliance issues produced by ADA Times Publishing.

The ADA Resource Manual, \$59.95, is a 415 page technical compliance manual containing specific details regarding acceptable door opening widths, closing speed, device mounting locations, architectural hardware specifications, etc. It also includes an unabridged edition of the "ADA Law." For further information contact ADA Times Publishing at 1-800-355-0300.

THE LIGHTER SIDE

Continued from page 54

him enough to finally get him back into the house.

As I was packing up the last of my tools, I overheard the owner of the rig say to one of the officers, "Man, I'm sure glad nothing serious happened here tonight. That guy has been known to go completely berserk. He had a gun, you know."

"He did?" the policeman asked.

"Sure. Didn't you see it? He had it tucked in his belt, at the back."

When Don had finished his tale, we both were silent a moment, each ruminating over the dangerous aspects of such a situation. Then, to break the tension, I said, "Well, I hope you charged appropriately for your services."

"Are you kidding?" he asked. "I added a extra twenty percent 'PM' charge."

"You mean for the late-night call?"

"No, I mean on top of the late-night call — a Pace-Maker charge. The way my heart stopped when I heard about the guy's gun, I figure I may need one of those things before long."

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SHOP TALK

Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers. Send your questions to *Shop Talk*, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

*Troy Roberts
Pennsylvania.*

A: Well, your information is part A right. Both the J and L series Chrysler codes share the same biting list. They also share the same spacing and depths and code card. However, this is where the similarities end.

While sharing the same biting list, the code numbers from each series do not share the same biting. Apparently the older J series codes were simply scrambled and attached to the new L series code number. For instance, the code L0001 is actually the same biting as the J2560, L0002 is the same as J2853, and L0003 is the same as J1664.

As you can see the relationship between the two series is not sequential. While a pattern may exist for matching the series, a quick perusal of them does not shed much light.

Another major difference is the keyblank. While both series utilize the same spacing and depths, they do differ on the use of a blank. The J series codes use Briggs & Stratton 595895, groove 78, as a master key, while the L series uses 596504, groove 84.

The Chrysler J codes can be found in the August and September 1992 issues of *The National Locksmith*. The L codes will be printed later this year. Also if you take a quick look at Bits &

Q: I was told that the Chrysler J series codes and the new Chrysler L series codes use the same bittings and the same spacing and depths and code card. I tried making a key using this information for one of my car dealers but the key did not work. How come?



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Pieces, a Chrysler model year/code series/keyblank reference chart has been provided by Briggs & Stratton.

Q: I'm 82 years old and have been a locksmith since 1971. I've had a lot of trouble getting into the 1992 Lumina and Grand Am. What is the best tool to use and the easiest way to get in?

Ken Wolfe
New York


A: The best and fastest way to get into any car, Ken, is the one that works best for you. Every locksmith has his own method for getting into different vehicles. As for me, the under-the-window tool has worked very well on both vehicles. The tool, manufactured by several companies, is inserted into the door. Once down past the window edge, it is lifted up, putting the back part of the tool on the inside of the car. The large loop on the tool allows you to drop down and activate the lock button.

Q: A good customer of mine purchased all brand new padlocks for his building so they could be put on his masterkey system. Because I set up the system and keyed the building, this was an easy and very profitable job. When I was completed, however, the owner handed me a box full of the old padlocks and said I could have them. The problem is, these locks, while they are all from the same company, don't have code numbers or keys (the maintenance guy threw them out after he took the locks off). They have laminated steel bodies and no other distinguishing mark on them. What's the best way to make keys for them.

Steve Jahoritz
Rhode Island.

A: Unless you need the practice or just enjoy working on locks, the time spent making keys for them usually exceeds what the lock is worth. In most cases, it's better to simply trash them or sell them for scrap.

On the other hand, if you're like me, it's sometimes enjoyable just to sit around and pick open or make keys for locks that have been sitting around. Regardless of your reasons, you'll first need to find the right blank. If that can be accomplished my first approach would be to impression them. Generally, they will be either a warded lock or have a small four tumbler cylinder, both of which impression relatively easy.

If that does not work, and you still want to make keys, and provided you have blanks that fit, try taking the lock apart. While this may not work with every laminated lock, by using a hollow mill drill (HPC offers such a tool), the base plate rivet of the lock can be sheared to allowing the baseplate and the lock cylinder to be removed for service. After making the key, replace the cylinder and baseplate and repecten the rivets to hold the lock together. 



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TEST DRIVE

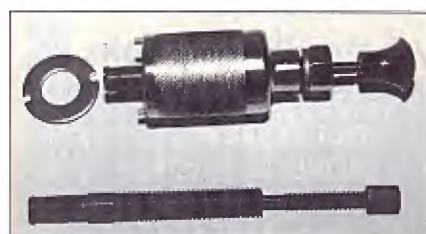


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HPC'S TUBULAR LOCK KILLER™

PRODUCT: HPC Inc., TLK-50A Tubular Lock Killer™ and TLK-P adapter, available through authorized HPC distributors. Suggested cost is \$195.00 for the TLK-50A and \$19.50 for the TLK-P.

PRODUCT DESCRIPTION: The TLK-50A is a force extraction tool used for the removal of tubular lock cylinders. The TLK-P is an adapter to convert the TLK-50A from a pull to a push/pull tool.



1. The TLK-50A (top) and the TLK-P (bottom).

PRODUCT SPECIFICATIONS: The TLK-50A can be used for the removal of open, front insertion flush mounted tubular locks including tubular padlocks, bike locks and vending machine locks. This device is not designed for removal of rear loaded cam locks where the bodies are retained by a large nut.

In locks that are rear loaded, the TLK-P is used to convert the TLK-50A to a push/pull tool, forcing the lock cylinder out the back. This device can be used on cam locks.

FRIENDLINESS: Both the TLK-50A and TLK-P come with easy to read, step-by-step operating instructions. The tools are easily applied and make it easy to open the lock with a tubular keyway.

FEATURES: The TLK-50A includes all the components necessary for pulling standard sized, front inserted tubular lock cylinder. Collet fingers are

inserted into the front of the cylinder. Once the tool is seated, you push a knob and the inner shaft is pressed forward pushing a small cup into the collet fingers and spreading them. This locks the collet into the lock. Then place the outer housing against the face of the lock (a washer is included for smaller faced locks), and turn the extraction nut using an open end wrench. As the nut turns, the cylinder



2. Placing the collet of the TLK-50A into the lock.



3. Turning the extraction nut.

retaining pin shears, allowing you to extract the cylinder from the face of the lock.

For rear loaded locks, replace the inner shaft assembly, cup and knob with the TLK-P. The change is simple, fast and requires no extra tools. Once in place, attach the unit to a tubular lock in the same manner as before.

Place the outer housing against the face of the lock by tightening the large extraction nut. Once the housing is in place, turn the smaller hex end of the TLK-P with a wrench until the lock cylinder is forced out the back of the lock housing.



4. With the cylinder removed from the housing, the lock can now be operated, removed and replaced.

COMMENTS AND SUGGESTIONS:

The TLK-50A and TLK-P are easy and useful tools to use for fast tubular lock removal and service. Picking and making a key or drilling the lock are still good ways to work on tubular locks, but sometimes take longer than the job is worth. Removing and replacing tubular cylinders often makes more sense, and these two tools make the job much more profitable.

The only other tool needed to remove a tubular lock is a wrench. The wrench could be eliminated by adding a handle or levers to the extraction nut on the TLK-50A and the small hex end of the TLK-P. This change would make these two tools totally self contained.

CONCLUSION: In a society where the benefits of remove-and-replace far exceed the pleasures of repair, the TLK-50A and TLK-P work as well as advertised. Even if you do a little tubular work, the cost of these tools is worth the time saved in trying to pick or drill.

DESCRIPTION:

Tubular lock force extraction tool.

COMMENTS: Easy to use for fast removal and service.

TEST DRIVE RESULTS:

Even if you do little tubular work, the cost of the tool is worth the time saved in trying to pick or drill.